



The  
**Quarterly Journal**  
of the  
**Mythic Society**

**INDEX TO VOLUME XVIII**  
**(For the year 1927-28)**

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**DALY MEMORIAL HALL**  
**Cenotaph Road, BANGALORE**



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HIS HIGHNESS COLONEL  
SIR SRI KRISHNARAJA WADIYAR BAHADUR, G.C.S.I., G.B.E.  
MAHARAJA OF MYSORE  
PATRON OF THE MYTHIC SOCIETY

*The Silver Jubilee of whose reign was  
celebrated on the 8th August 1927.*

# THE SILVER JUBILEE MESSAGE



*The Palace,*

*Mysore,*

*8th August 1927.*

On this day, when I complete the twenty-fifth year of my reign, I send my loving greetings to each one of my dear people, with a heart full of solicitude for their happiness. With unceasing effort I shall, while life lasts, endeavour to promote their welfare and prosperity, and I pray that God may give me light and strength to achieve this, the supreme object of my life and rule.

*Krishnaraja Wadiyar.*





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Vol. XVIII]

JULY, 1927

[No. 1

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THE SEVENTEENTH ANNUAL MEETING OF THE  
MYTHIC SOCIETY.

*Bangalore, 8th September 1927.*

K. CHANDY, ESQ., B.A., *First Member of Council,*  
*in the Chair.*

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THE Seventeenth Annual General Meeting of the Mythic Society was held in the Daly Memorial Hall, on Thursday, the 8th September 1927.

RESOLUTION :—

1. The members of the Mythic Society most respectfully tender their loyal congratulations to their Patron His Highness Colonel Sir Sri Krishnaraja Wadiyar Bahadur, Maharaja of Mysore, on the celebration of the Silver Jubilee of his reign and pray that he may long be spared to rule over his grateful people.
2. Resolved that a copy of the above resolution be sent to the Private Secretary to His Highness the Maharaja of Mysore for kind submission.

Rajakaryaprasakta Rao Bahadur M. Shama Rao, Esq., M.A., President of the Society, in moving the above resolution, spoke as follows :—

LADIES AND GENTLEMEN,

I beg to propose the following resolution for your acceptance : “ that the members of the Mythic Society most respectfully tender their loyal congratulations to their Patron His Highness Col. Sir Sri Krishnaraja Wadiyar Bahadūr, Maharaja of Mysore, on the celebration of the Silver Jubilee of his reign and pray that he may long be spared to rule over his grateful people.”

It needs no commendation on my part to bespeak your unanimous support to this resolution. His Highness the Maharaja has now been directly ruling us for the past twenty-five years and the outburst of enthusiasm and the profuse greetings of loyalty which His Highness' Silver Jubilee has evoked in all parts of the State and even outside, affords testimony not only to the benign rule of His Highness in developing the material and moral progress of the State and of its inhabitants, but also has brought into prominence that the moral worth of a personage is a great factor in the appreciation of the performances of an individual wherever he may be placed. The large crowds of people that assembled yesterday drawn from all parts of the State, the pleased and contented look that characterized them as they witnessed their Ruler passing in procession before them, the emulation with which the residents of Bangalore vied with one another in demonstrating their loyalty by setting up pandals and arches, translating thereby their inner feelings of gratitude into outer marks of manifestation, all go to show what a great hold His Highness the Maharaja and the Royal Family of Mysore have secured on the affections of their subjects. To the members of the Mythic Society who are acquainted with the past history of Bangalore such a demonstration appears to be peculiarly appropriate and does credit to the present generation who have inherited the traditions of their ancestors from the days of Chikkadevaraja Wadiyar, the great constitutional monarch and ancestor of the present Maharaja who ruled this country towards the end of the seventeenth century. The City of Bangalore at that time was not included in the Mysore State and was an object of contention between Aurangzeb, the Moghul Emperor and the Bijapur Nawab who was stationed at Sira. Chikka-devaraja Wadiyar, a true statesman as he was, blessed with long foresight, realized at once the importance of the situation of Bangalore and by his diplomacy won over Aurangzeb to his side and enabled himself thereby to include Bangalore in the Mysore territory. He did not however rest with a mere political success but did everything in his power to introduce various improvements and among these may be

mentioned the colony of pattigar weavers which he established in the City and thereby gave an impetus to its industrial prominence. The City of Bangalore, therefore, is under a special debt of gratitude to the Royal House of Mysore and it is no wonder that its inhabitants, while rejoicing in common with the inhabitants of the other parts of the State, should feel a special obligation to the Royal House of Mysore and should seek occasion to show their gratitude and loyalty to so worthy a descendant of that House as our present Maharaja is.

It is not for us on this occasion to traverse the whole field of beneficent measures inaugurated during the period of a quarter of a century which has elapsed from the time of His Highness' assumption of power into his own hands. Others outside these walls have referred to such measures and shown how much good they have secured to our country. It only suffices for us to say here that under His Highness' rule, the State of Mysore has come to occupy the foremost place among the Native States of India and His Highness has set a real example to show how peace has its victories no less than war. But for the beneficent rule of His Highness and the progressive tendencies with which it has been associated in the shape of the Representative Assembly, the Legislative Council and other popular institutions, thereby ensuring that the measures of Government initiated for the benefit of the people are really in consonance with their wishes and tend to their real utility, the recent remission of ten and a half lakhs of rupees annually out of the subsidy would not have come about. This success is a great achievement on the part of His Highness' statesmanship and affords also an insight, if I may venture to say so, into the mind of the Imperial Government that their task is not concluded by merely maintaining harmony among the different Rulers of Indian States among themselves and with the Suzerain Power but that when a Ruler of a Native State makes the advancement of the good of his subjects his paramount duty, they are also willing to remedy inequalities and injustices which by force of circumstances in the past may have established themselves. During the reign of our Maharaja, Mysore has won success in other fields also. While the German war brought miseries also in its train, it helped to show that the martial traditions of India were only slumbering and had not become extinct. It is not too much if I say that Mysore though pursuing peaceful avocations for a century past, has shown that her military glory is not merely one of the past but can equally show itself in the present and the future when occasions present themselves for the manifestations of such spirit. Lord Curzon in his speech in August 1902 at the time when His Highness was invested with ruling powers, referred in well-merited terms to the great services rendered

to this country by His Highness' ancestors including His Highness' father Sri Chamarajendra Wadiyar Bahadur and His Highness' mother, Her Highness Maharani Vani Vilas Sannidhana C.I. I need not refer in detail to these services here but I cannot help referring to a few names prominently before my mind. To Mummadi Krishnaraja Wadiyar we owe the integrity of Mysore kingdom and it was his constitutional agitation for the restoration of this country that secured the continuity of Mysore as one of the Native States. I have already referred to the statesmanship of Chikkadevaraja Wadiyar in whose time the Mysore territories were greatly expanded and in the constitution of Government which he introduced we still see its traces in our present-day Government. Going back further we have the great name of Yaduraja, Raja Wadiyar and Kantirava Narasimharaja Wadiyar. Yaduraja was a veritable knight-errant and he it was that succoured a forlorn maiden, the descendant of the then Ruling House of Mysore from an odious and forced marriage and married her himself, thereby becoming the first progenitor of the present Ruling House of Mysore. Raja Wadiyar was as much noted for his military prowess as for his statesmanship and love of justice and fairplay. Kantirava Narasimharaja Wadiyar's name is even now in the mouths of people whenever reference is made to great military exploits and the epithet Ranadheera with which he is associated resounds even now in the ears of the Mysore people. It can, therefore, be truly said that Lord Curzon when he referred to the ancestors of the present Maharaja indulged in no exaggeration but only related sober facts borne out by history.

Coming to our own society, the Mythic Society, I need not say, has been under very great obligation to His Highness. The substantial generosity of His Highness and of His Highness' Government enabled our first President, the late Father Tabard, to embark upon the construction of the beautiful building in which we are assembled to-day not only as a memorial to Sir Hugh Daly, one of our respected British Residents but also as a Home for the Mythic Society and as a place of pilgrimage to antiquarians, to research workers and other scholars visiting Bangalore not only from all parts of India but also from outside civilized countries of the world. At the time of laying the foundation stone of this building on the 31st August 1916, His Highness expressed the hope that when the objects of the Mythic Society became better known, the people at large, not the learned few only, would begin to feel pride and interest in its work. He also further emphasized that the Society would bring together Europeans and Indians to work on common platform for an object which appealed to the higher intellectual tastes of civilized life. May we not say that this hope has been a true forecast? At present, outside these walls, while communal differences and

petty bickerings often mar the even tenor and harmony of life, here in this building we know no such evils and the place has become a refuge to escape from the sordidness of the world and a haven to obtain intellectual peace. With these words I beg to commend the proposition to you and pray for your enthusiastic and unanimous support.

In seconding the resolution Col. P. A. Skipwith said that Mr. Shama Rao had already invited the attention of the Meeting to the imposing and high personality of the Ruler of Mysore and he requested all the members to join in one voice for the adoption of the resolution.

The resolution was carried unanimously and with acclamation, all the members standing.

Mr. S. Srikantaiya, General Secretary and Treasurer, then read the Report for 1926-27.

### REPORT.

The Committee of the Mythic Society desire to place before you this evening a report of the Society's activities during the year 1926-27.

PRESIDENT:—At the last annual meeting of the Society, Rajakarya-prasakta Rao Bahadur Mr. M. Shama Rao, Chairman of the Committee during the previous year, was elected President of the Society, in succession to the Rev. Father A. M. Tabard.

2. MEMBERSHIP:—The strength in membership is steadily maintained, and during the year a few of the members have become life members. There are nearly 550 ordinary members and 40 life members on the rolls. It is hoped a larger number will become life members. The Committee renew their appeal to its members to invite their friends to join the Society.

3. We have to record, with deep regret, the death, during the year of four of our valued members. Mr. D. M. Narasinga Rao took a keen interest in connection with the construction of a building for the Mythic Society. Mr. B. Venkoba Rao was a life member and a most regular visitor to our meetings and the Society's Library. Dr. Hultszc and Mr. B. L. Rice were Orientalists of international reputation. Dr. Hultszc was an honorary member of the Society and was often contributing interesting papers to the Journal. Mr. B. L. Rice was the Director of Public Instruction, Head of the Archæological Department and author of a large number of works on Mysore. The present position of Kannada literature and our knowledge of Mysore history are almost entirely due to his labours of a life-time. Even after retirement, he continued his interest in the development of Kannada literature and he published *Mysore and Coorg from Inscriptions*. *Mysore* (2 volumes), *Epigraphia Carnatica* and *Sravanabelagola Inscriptions*

(2 volumes) are monumental works of reference on Mysore history. Not merely the Mythic Society or India but the learned world will be the poorer for their loss.

4. **FINANCE:**—The Statement of Receipts and Expenditure will show that the year opened with a balance of Rs. 140-15-1, while the closing balance was Rs. 618-12-1. In spite of a large investment on books and on repairs to the premises, we have been able to add to the fixed deposits which stand to-day at Rs. 10,450 and to show a fair closing balance. If the members in arrears should, however, be pleased to help us by clearing them, we can hope to be in a much better position than at present.

5. **MEETINGS:**—There were nine meetings during the year at which interesting papers were read and the Committee offer their thanks to the several gentlemen who delivered the lectures.

6. **JOURNAL:**—The Journal continues to maintain the high standard set by its promoters and we are grateful to the contributors who have helped in this endeavour.

7. **EXCHANGE:**—The exchanges include periodicals, transactions of research institutions, universities, departments of archæology, anthropology, etc. and of the various administrations in India.

8. **LIBRARY:**—In addition to the large number of volumes purchased by the Society, presentations have been made by the various Governments in India and the States of Hyderabad, Travancore and Kashmir. All publications in Mysore are sent to us. Besides the Oxford University Press, the universities of Calcutta, Madras and Mysore are sending their works to us. We are grateful to these and to the several authors who have presented their publications.

9. **READING ROOM:**—The Free Reading Room of the Mythic Society is becoming increasingly popular. It provides a very large and an excellent and varied collection of journals and magazines to the reader, in several languages, relating to the objects of the Mythic Society. The number of visitors during the year was 4,129.

10. **PREMISES:**—The hall and the premises are kept in good condition. The garden has been improved. The hall continues to be in demand for meetings by various associations. The Mysore Civil Service Association, The Civic and Social Progress Association, The Released Prisoners' Aid Society, The Non-Gazetted Officers' Association, The Mysore Chamber of Commerce among others held their meetings in the Daly Memorial Hall.

11. The Government of India have been pleased to sanction a permanent yearly grant of Rs. 300 to the Society and our grateful thanks are due to our Honorary President, The Hon'ble Mr. S. E. Pears, in this behalf. The Government of His Highness the Maharaja of Mysore have been pleased to renew their grant for another three years and we are always indebted to them for their generous sympathy in our efforts.

12. VISITORS :—Doctor Sir P. C. Ray was pleased to visit the Society and deliver a lantern lecture on “ Hindu Chemistry ” to a crowded audience. Quite recently, Mahatma Gandhi was amidst us and gave an interesting address on the untouchability question.

13. The Society was founded in 1909 and its continued flourishing condition is due mainly to the enthusiastic support it has received from its Patron, its founders and its members. The Committee desire to express their gratitude to them all for the sustenance afforded to the Society till its majority.

14. The Silver Jubilee of the reign of our Patron, His Highness Maharaja Sri Krishnaraja Wadiyar of Mysore, was celebrated throughout the State on the 8th August 1927, with becoming splendour amidst universal rejoicing, and a congratulatory address was presented by the citizens of Bangalore on the 7th September 1927. On this unique occasion, we beg to tender our most respectful homage and congratulations to the Maharaja on the celebration of the Silver Jubilee of his reign and fervently pray for the long continuance of his benevolent administration.

Rao Bahadur Mr. M. Shama Rao proposed that the Report be adopted. Mr. K. Devanathachariar, in seconding, said that the Report showed another year's good progress. After the death of the late Rev. Father Tabard early last year, there was a fear in the minds of some whether the Society would be able to continue its activities in the same excellent manner. But the work done during the year was extremely satisfactory. He referred to the scholarship and experience of the Society's learned President, Mr. Shama Rao, and congratulated Mr. Srikantaiya on the good work he had turned out and on his being able to follow in the footsteps of the late Father Tabard, especially in the art of beggary. He liked the Secretary's modesty in having influenced the President not to speak about Mr. Srikantaiya's good work and heartily supported the resolution and said that the Report may be adopted with the above remarks.

The Report was accordingly adopted.

Mr. K. R. Srinivasa Iyengar next proposed that Rao Bahadur Mr. M. Shama Rao be re-elected President of the Society. In doing so, he referred

in very felicitous terms to the vast learning, great experience and wide knowledge of men and matters the revered President possessed. His researches in the history of Mysore were especially noteworthy.

Mr. F. R. Sell said that in addition to all the qualities enumerated by Mr. Srinivasa Iyengar, the President possessed yet another rare thing: leisure. Responsible officers of such societies as this required men who had ample leisure at their disposal, which Mr. Shama Rao was not lacking in. He said that it was hard to find another of such attainments for the Office and he heartily seconded the motion.

The resolution was carried unanimously.

The following gentlemen were proposed by Mr. K. Srinivasa Rao and seconded by Mr. K. H. Ramaiya, as Vice-Presidents of the Society:—

1. Amin-ul-Mulk Mr. Mirza Mahomed Ismail.
2. Rajadharmapravina Dewan Bahadur Mr. K. S. Chandrasekhara  
Aiyar.
3. Rajamantrapravina Dewan Bahadur Mr. P. Raghavendra Rao.
4. Rajatantrapravina Dr. Sir Brajendra Nath Seal.
5. Mushir-ul-Mulk Mr. Mir Humza Hussein.
6. Mr. K. R. Srinivasa Iyengar.
7. Mr. K. Chandy.
8. Mr. C. S. Balasundaram Iyer.

The proposition was carried.

The following gentlemen were proposed by Mr. K. Sankaranarayana Rao and seconded by Mr. S. Narayana Rao for the several Offices:—

*General Secretary and Treasurer*:—Mr. S. Srikantaiya.

*Joint Secretary*:—Mr. A. V. Ramanathan.

*Editors*:—Mr. F. R. Sell and Mr. K. Devanathachariar.

*Branch Secretaries*:—

Ethnology:—Mr. C. Hayavadana Rao.

History:—Rev. Father C. Browne.

Folklore:—Col. P. A. Skipwith.

COMMITTEE:—The above *ex-officio* and

1. Mr. P. Sampat Iyengar.
2. Praktana Vimarsha Vichakshana Rao Bahadur  
Mr. R. Narasimhacharya.
3. Mr. K. Matthan.
4. Mr. K. Srinivasa Rao.



5. Mr. B. Puttaiya.
6. Arthasastra Visharada Dr. R. Shama Sastry.
7. Rao Bahadur Mr. H. Krishna Sastri.
8. Mr. N. S. Subba Rao.

The proposition was carried.

### CHAIRMAN'S SPEECH.

#### LADIES AND GENTLEMEN.

While I am thankful to the Managing Committee of the Mythic Society and particularly to my friend Mr. Srikantaiya, the Secretary, for the honour that has been conferred on me by my nomination as Chairman of this Annual Meeting, I must sincerely apologise to you all, both on my behalf and on behalf of the Society of which I am an unworthy member, for the Committee's inability to have secured for this occasion a Chairman of real eminence and distinction. All our previous Chairmen have been such. I trust, —in the best interests of the Society,— that this year will form no precedent; and that with this one unfortunate interlude, we shall again have a galaxy of distinguished names.

I beg leave to congratulate the Society and its Secretary on another successful year. The membership now stands at 550 of whom forty are life members; the reserve fund amounts to the handsome sum of Rs. 10,450; the Society has received recognition at the hands of the Government of India; the Reading Room is being more and more largely used, as also the Hall in which we have met; there have been lectures by very eminent men; the *Journal* continues in its unhurried, deeply learned course, to unearth many hidden treasures, and the Society has taken its place among the leading learned societies of the world. I have also to note that this particular Anniversary is distinguished from other anniversaries of the past and those that may come in the future in that this is the year in which our Patron, His Highness the Maharaja, completed 25 years of his glorious and beneficent rule—amidst the universal rejoicing of a happy and contented people; and the year in which the Society has itself completed 18 years of useful activity. If one may speak without irreverence of a society composed for the most part, with a few exceptions like your unhappy Chairman, of men of hoary wisdom, learning and erudition, as having been, in a manner of speaking, under guardianship, for instance, of public opinion generally and of the cultured world in particular, this year may be considered as one in which it has attained majority and need no longer have any guardianship; and may take its place with *confidence* among associations intended for the promotion of culture.

Ever after Mr. Srikantaiya conquered my opposition and got my unwilling consent to do his bidding on this occasion, I have been cogitating what an ignorant person could talk about at the Annual Meeting of a learned society. One of my predecessors in this Chair said that "any cultural institution is a standardized response or reaction of the organism to the extra-organic stimulus under generalised situations". Whatever that may mean, I feel that the talk of a rank outsider without any scholarly attainments will form no kind of reaction in the organism of the Mythic Society, and if, in addition, my remarks should also tire your patience, the responsibility for it has entirely to be borne by your Secretary.

Men used to believe that the sun and the stars were fixed in space by a beneficent Providence to give us light by day and night, and that the matter that we perceive is real and ponderable. It would now seem as if the solar system and the stars, and perhaps the whole universe are moving forward many miles a second, one knows not whither or why,—or with what cataclysms in the womb of the future,—and that matter is merely charges of different kinds of electricity,—a dance of electrons and protons,—we know not whence or wherefore. Then again, the ideas that we had about space and time have been mercilessly knocked out of us. When we are thus groping for more light in all departments of knowledge, it is worth while enquiring, whether the people that spend their time digging among the graveyards of history are not wasting their time. I do not know whether that was not the real opinion of another distinguished Chairman whose language was purposefully enigmatic about his own view of the matter. Should such doubts arise in the minds of people who spend weary hours in studying ancient beliefs, practices and institutions, I would say that in this welter of ignorance that I referred to, the one thing that seems to stand as real is the human mind; and that whatever effort is put forth in any branch of culture,—without bias, without prejudice,—has the undoubted effect of improving the mind,—and, apart from all other considerations, that itself is a distinct gain. I said without bias and without prejudice. If scholars begin with any kind of prepossession, their subsequent work is as good as worthless; but getting the correct facts about what may be called the attitude of the human mind towards its environments in the distant past gives an impetus in various directions the value of which cannot easily be measured. That is the first benefit. A second is that in the pursuit of truth, which your scholars are engaged in, there is no caste nor creed, no East nor West, but only the distinction between what is true and what is not. Such pursuit, it seems to me, makes on that account for those qualities of the mind which the heaven-inspired poet Shelley considered as most useful in the perennial

warfare against evil, namely, gentleness, virtue, wisdom and endurance, which "are the spells by which to reassume an empire over the disentangled doom". Hence, although my training and occupation do not enable me to understand a great deal of what is written in your very learned *Journal*, I feel all the time that these scholars are ultimately on the side of the Angels and I reverence them accordingly. This feeling of reverence towards those who are engaged in the pursuit of truth in any form is perhaps the best, or the only, offering that one whose work lies in very different fields may lay at the altar of a society like yours at its Annual Meeting.

Engaged, however, as I have to be in my daily work in thinking about the practical good, the pragmatic good, I hope you will permit me also to suggest two lines of investigation, which, apart from the discovery of the truth about those subjects, have a highly practical value. The first is, the origin of caste and the causes that have led to its present stratified condition. Some of you may remember that very recently I invited the attention of Christian Missionaries to the strange fact that during the early days of Christianity in India,—that is, long before the advent of Western Missionaries, the Hindu Sovereigns on the West Coast, who were undoubtedly as much under the spiritual (or priestly?) guidance of Priests as Sovereigns of the present day, nevertheless allowed Christian Churches to be constructed in the close proximity of Hindu temples and gave vast social privileges to their Christian subjects; and I may add to Jains also, and in fact, although Christians had both baptism and separate places of worship they were nevertheless regarded as an integral part of Hindu Society with even, it is believed, marital relations with caste Hindus. Why caste which thus appears to have been more fluid in that age, should afterwards have become so petrified as a subject that may very usefully be studied. Some one in this audience might, perhaps, succeed in binding the tresses of the morning of that hoary institution, so that all might notice the real texture. While it is impossible and useless to attempt to restore the beauty that must have been there to have given it such lengthened life,—that beauty has faded for ever,—accurate knowledge may enable us to *transform* it for wholesome uses in a changing world. The student may perhaps be led even to fruitful discoveries about the way in which, in view of the present times and circumstances, we might mould the future.

I wish to repeat what I said at that meeting that Democracy has very little chance of succeeding in India until the divisions as they exist at the present moment are greatly modified. Since I spoke, you must all have read what a learned American student of Democracy is writing in the *Hindu* about the essentials for the success of representative Democracy, none of

which qualities we have at present in India, and what His Excellency the Viceroy said about the need for communal harmony. Mass conversions, by different religionists with the idea of increasing political strength, the removal of untouchability, not primarily, on its own merits, but with the object of augmenting material strength and preventing defections, these and other such measures which tend to fan the flame of bitterness between rival creeds are no real remedies. The question is one of very vital importance to us ; perhaps some of you might be able, by studying the past, to get an inspiration for the present, and teach a better way.

The second subject of which I would like some member to deliver a learned address is that of *dreams*. A man who pays any attention to dreams is usually regarded as unpractical ; and practical men do not perhaps wish to learn anything about dreams. A good dreamless sleep is undoubtedly the best thing for health ; but a very great deal about the human organism has been learnt by studying even pathological conditions ; and similarly it is quite likely that by a scientific study of dreams one may be able to gather very useful information about the human consciousness and—to be pragmatic once again—about the uses to which it could be put. For instance, have we not each of us in our dreams imagined ourselves to be behaving like some one else or to have done things that are beyond us in our waking state ? I am aware of the theory about dreams of psycho-analysts, but I beg respectfully to submit that they have not said anything like the last word about the human consciousness. Perhaps, by scientific study we may tumble on the discovery that the distinctions that we now make so much fuss about are somewhat unreal and that there is a real link between man and man about which we know very little at present. This discovery, again, just as the study of the origins and progress of caste, might lead to greater kindness and fellowship and hence improve the chances of peace.

I said in the beginning that I am outside the caste of scholars and scientists, almost an untouchable,—but it is deliberately that I have violated the main canon of a scholar or a scientist, which is to pursue the truth wherever it may lead and with no moral or other prepossession. I have a violent prepossession in favour of peace and good-will. The Great War seems to have taught us nothing ; and we seem merrily, with tambour and harp, to be going down the path, the end of which might probably be a greater war and the destruction of modern civilization. If by your studies, you should discover the follies that have led to wars in the past or the wisdom that prevented them, you would be doing a great service. Perhaps, if it is discovered that Providence is as much concerned with you as with me ; that religious convictions are a matter between man and God and need not

separate brother (literal and metaphorical) from brother ; that it is fear that separates,—taboo, caste, colour,—and *that* is mostly unreal ; that life is an adventure where no one need expect for himself more than a sporting chance ; and existence can be made full and interesting, for the young without war, which benefits only plutocrats and contractors; that the Psyche in us is real and vastly important, we may help,—scholars and laymen alike,—in creating a public opinion which will condemn communal strifes, wars, pride of race and other such ills that make this world undelectable, as being simply bad form, that no well-bred man need encourage or tolerate. Let us hope that the Mythic Society may win greater laurels through lectures and essays which may lead men to such thoughts and fashion them to a temper of peace and good-will.

I thank you, ladies and gentlemen, for having listened to these somewhat disjointed and perhaps Victorian observations with so much of good feeling and patience.

Mr. C. S. Balasundaram Iyer, in proposing a hearty vote of thanks to the Chairman, remarked Mr. Chandy's speech was most inspiring to the members of the Mythic Society. They were all sure they had secured a very learned Chairman for this year's Anniversary also. He heartily thanked Mr. Chandy for presiding over the Seventeenth Annual Meeting.

With three lusty cheers to His Highness the Maharaja of Mysore, the meeting came to a close.

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# THE MYTHIC SOCIETY, BANGALORE.

*Statement of Accounts from 1st July 1926 to 30th June 1927.*

RECEIPTS	AMOUNT	PAYMENTS	AMOUNT
	Rs. A. P.		Rs. A. P.
1. Resident Members' Subscriptions ...	438 0 0	1. Establishment:—	
2. Mofussil Members' Subscriptions ...	691 14 0	Pay of the Staff ...	932 0 0
3. Life-Membership Donations ...	180 0 0	Liveries ...	29 10 0
4. Mysore Government Grants ...	2,100 0 0	Garden ...	127 12 0
5. Government of India Grant ...	300 0 0	Water Charges ...	4 4 0
6. Interest and Dividend earned ...	639 1 0	Lighting Charges ...	159 8 0
7. Sale of Journals, Catalogues, etc. ...	63 2 0	Electric Accessories purchased ...	16 4 0
8. Hall charges realized ...	9 0 0	2. Journal:—	
9. Advertisement charges realized ...	35 0 0	Printing ...	1,183 12 0
10. Recoveries from Servants	184 0 0	Postage ...	256 6 0
		3. Library:—	
		Books Purchased ...	461 0 0
		Subscriptions to newspapers	94 6 0
		Book-binding ...	48 12 0
		4. Fixed Deposit with the Bank of Mysore ..	300 0 0
		5. Miscellaneous:—	
		Repairs, whitewashing, etc.	230 0 0
		Advance to Servants ...	113 0 0
		Bicycle overhauling ...	13 6 0
		Stationery and miscellaneous ...	192 4 0
Total ...	4,640 1 0	Total ...	4,162 4 0
Add Opening Balance ...	140 15 1	Add Closing Balance ...	618 12 1
GRAND TOTAL ...	4,781 0 1	GRAND TOTAL ...	4,781 0 1

*\* Details for Closing Balance :*

	Rs. A. P.
1. In the Bank of Mysore	607 4 10
2. With the Curator	2 1 1
3. With Branch Secretaries	9 6 2
TOTAL ...	618 12 1

Bangalore, }  
8th Sept. 1927. }

**Reserve Fund:—**

	Rs.
Mysore State Loan Bonds	10,050
Bank of Mysore Share	100
Fixed Deposit	300

TOTAL Rs. .. 10,450

S. SRIKANTAIYA,  
General Secretary & Treasurer.

## OBITUARY

### Ernst Hultzsc

Eugen Julius Theodor Hultzsc, who died early this year, was born in Dresden on the 29th March 1857. After a brilliant University career in the study of classics and oriental languages he took the Ph.D. degree from the University of Lipsia in 1879 when he was yet 22 years of age. He was connected with the Vienna University till 1866 where he had constant intercourse with Buhler.

Dr. Hultzsc came to India in 1884-5 on tour and was later appointed Epigraphist to the Government of Madras. He held the office till 1903 when he was appointed Professor of Sanskrit in Halle, Germany. His services to India will leave us grateful to him for ever.

Among the first important publications he made was an edition of *Baudhayanadharmaśāstra* and three valuable Reports on Sanskrit MSS. in Southern India. He was for some time Assistant Editor and later sole Editor of *Epigraphia Indica*. The three volumes of *South Indian Inscriptions* were published in 1890-1903. The monumental edition of the Edicts of Asoka in the *Corpus Inscriptionum Indicarum*, Vol. I, was published only two years ago, in the venerable old age of its author. His last paper *Samkhya und Yoga im Sisupalavadha* was published on his 70th Birthday.

Dr. Hultzsc was a great scholar of Sanskrit and Prakrit and was familiar with the chief Dravidian languages. His works are all characterized by critical acumen, unbiassed reasoning, scrupulous accuracy and solid learning. He was a gentleman and endeared himself to his friends and acquaintances. He will be remembered by Indian epigraphists as their *Guru* directly or indirectly. The world at large and India in particular are left under a deep debt of gratitude to him; and he will ever be remembered as one of the greatest scholars the world has produced.





## OBITUARY

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### B. L. Rice

People of Mysore feel a personal loss in the death of Mr. B. L. Rice which occurred in London a few months ago.

Mr. Rice's prime of life was devoted for the benefit of Mysore. As Director of Public Instruction, he organized and laid the foundation of a sound system of Education on which has been built the present super-structure. After a brilliant propaganda in the field of Education, he turned his attention to the ancient remains of the country. He was the first Director of Archæology which department also owes its present efficiency to him. He was the author of a large number of works on the inscriptions in Mysore. His Reports are an asset to the country. The present position of Kannada literature and our knowledge of Mysore history are almost entirely due to his labours. Throughout his life, his interest for Mysore and Kannada continued.

*Mysore and Coorg from the Inscriptions, Mysore Gazetteer (2 Volumes) and Epigraphia Carnatica and Sravanabelagola Inscriptions* are the more important of his works. These must form the basis for any authentic history of Mysore that may hereafter be written.

# HISTORY OF COW-PROTECTION IN INDIA. \*

BY L. L. SUNDARA RAM, ESQ., M.A., F.R.ECON.S. (London.)

“IMMEMORIAL custom is transcendent law, approved in the sacred scriptures and in the codes of divine legislation; let every man, therefore, of the three principal classes who has a due reverence for the supreme spirit which dwells in him, diligently and constantly observe immemorial custom.”<sup>1</sup> This dictum of Manu may be taken to be the motto for the present chapter. The history of cow-protection in India is one of the brilliant phases of our national strivings which we perpetuate to the end of the world. The cow occupied a prominent place in the outlook of the sons of Bharatavarsha ever since the Aryans set their foot on the Indian soil. Not merely the Aryans of India, but the members of the Aryan stock who will be found dispersed in foreign lands, especially the Indo-Iranians, have an exemplary veneration towards bovine cattle. Dr. Macdonnel admirably sums up the influence of the cow upon Indian life and thought: <sup>2</sup> “To no other animal has mankind owed so much, and the debt richly repaid with a veneration unknown in other lands. So important a factor has the cow proved in Indian life and thought that an exhaustive account of her influence from the earliest times of the world would form a noteworthy chapter in the history of civilization.”

Such being the importance of the cow to us Hindus, it is but obvious that the history of cow-protection in India must have had a very glorious aspect, and we will not feel disappointed when we review the progress of the movement towards cow-protection in India.

We cannot afford to ignore the disturbing elements that obstruct the fair progress of the universal movement towards conserving cow life in India. We have already seen that at one time cows and bulls were thought to be fit animals to be slaughtered in sacrifice and several instances are available for us to show that they were actually slaughtered and slaughtered in abundance. We have seen again that the Muhammadans in India have a positive hatred towards the Hindu veneration of the cow, and the economic harm their masses have done to the country in taking a toll upon cattle life, especially the bovine cattle, whose fundamental importance to Indian agriculture can, in no way, be minimized. There have always been other dangers to cattle life in India which mean a loss to national interests. Pestilence, disease and draught take a regular toll upon cattle life in India. These

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\*A chapter from the writer's forthcoming monograph on *Cow Protection in India*.

1. *Laws of Manu*, Ch. I, verse 108.

2. *A History of Sanskrit Literature*, p. 110. 1905.

are not all. Take this significant passage from the pen of a distinguished Judge of the East India Company describing the situation of India towards the closing part of the eighteenth and the early decades of the nineteenth century.<sup>1</sup> "The Gochores, or cow-stealers, are among the cleverest of delinquents. They are chiefly Mussalmans and *Motchees*, sometimes joined and often encouraged by the Gowalas. This crime is particularly common in the neighbourhood of Calcutta and all great towns, where there is a demand for cow's flesh. The intermediate sales are conducted with such rapidity and skill; the animals are so defaced by mutilating their horns and ears, and by the additional marks placed on them, as well as by the loss of flesh, and there are so many different individuals employed in the sale, that the proofs of this become so tedious and frequently impossible." Besides this, there is the annual toll in the shape of cattle poisoning. "There is a class of English Medical Officers known as Chemical Examiners to Government, whose researches have largely contributed to the detection and conviction of cattle poisoners who, for centuries, have taken a heavy toll on the beast life of the land."<sup>2</sup> These are not exceptional practices, for in one prison at one time fifteen hundred leather-dressers have been confined for cattle poisoning.<sup>3</sup>

The aggregate harm from all these sources to Indian cattle life can never be of any negligible magnitude. But with all this serious handicap there is a universal craving in India for the conserving of cow life. Efforts were made with never flagging interest. Indian history is an unqualified testimony to this phase of our national endeavour. With all the bigotry of Indian Muslim rulers,—the more liberal among them, who form a majority, have not only abstained from killing cows but have promulgated positive ordinances in the cause of cow protection.

When we sketch the history of cow-protection in India, for that matter, of any movement in the world, we have to take the impressionistic effects of pageants and the inspiring grandeur of sights besides the spirit of the exhibitions. Weak points must not be put to any searching scrutiny, while from the numerical point of view the instances must not prejudice the effects of those pageants upon us. We have to gauge the broad general effects, and thus rest satisfied with a rapid survey of the memorable phases of the history of cow-protection in India.

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1. *Considerations on the Present Political State in India*, Vol. I, p. 129. By Alexander Fraser Tytler, Assistant Judge of the XXIV Purganas, London, 1815. 2 Vols. A rare set of interesting volumes.

2. *Beast and Man in India*, p. 109. Cf. Appendix XIX to the present monograph from which the magnitude of cattle-poisoning in India will be apparent.

3. *Beast and Man in India*, p. 108.

The efforts at cow-protection that were made successively throughout the general course of Indian History may, for the sake of convenience and clarity, be divided into two divisions, social and regal. By social legislation I mean the sum total of the efforts of society,—its prejudices, conventions and customs that will produce at times more beneficial and striking results than all the strivings of the rulers of a country. By regal legislation is to be understood the action of the State in the matter, in the shape of public ordinances, prohibitory promulgations, and, later on, at the present day, the embodiments of statutory legislation. In both these respects the history of cow-protection in India has a unique story to recount. We will now take up one by one the two kinds of legislation and trace their history, incorporating in our investigations for the first time the scattered remnants of social and regal effort as they come down to us from contemporary documents, which will enhance the clear impressiveness of our pageant.

The attitude of the Hindu religious lore and the general trend of Hindu traditional beliefs towards cow-life are the effective instruments in making way for the movement of genuine cow-protection. In a primitive age, Aryan India might have considered bovine cattle as fit offerings in sacrifice. But the more salutary phases of Indian outlook generally preserved intact the strivings of the generality of the Hindu population in protecting cow-life.

The cow has always inspired a certain amount of reverential awe in the minds of the ancient Aryans. As such it is but natural for us to expect in their sacred codifications injunctions of an imperative kind that go a long way in directing social action in respect of its relation to cow-life. The fundamental importance of bovine cattle to Indian agriculture of the Aryan times had had its effects upon the codifiers of our sacred texts who freely indulged in hyperboles and commendatory metaphors while describing the sanctity of cow life. In the light of the Hindu theories so far worked out in the earlier chapters, it will be apparent that the cow is regarded by our ancestors as the central point in creation and signifies the sustaining stamina of the world. I need not go here into details as regards the position of the cow in Indian sentiment, as it has been fully exposed elsewhere.\* Suffice it to say that the cow is an earthly deity even more exalted at times than the Brahmans.

The Buddhist creed following in the wake of decadent Hinduism has contributed, along with its famous harbinger Jainism, not an insignificant quota towards sanctifying life on earth,—animal life including. We have found that Buddha applied an effective break to the trend of the Brahmanical

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*Cf. Quarterly Journal of the Mythic Society, Bangalore (Second Series), Vol. XVII, No. 4. pp. 277-293.*

type of sacrifice. We have found that the Order consisted of Bhikkus who led exemplary lives of humaneness. We have found that animal hospitals were established throughout the length and breadth of the country. We have seen how animal slaughter has been stopped even in the royal kitchens of Asoka and Harsha Vardhana. Thus the *dharma* of the Buddhist creed all the more emphasized the sacredness of cattle life and in particular cow-life to the world.

The general legacy of Aryan civilization has been scrupulously preserved in all the ages through which India has passed, that even at the present day we show the same tenacity in preserving cow-life. I will now cite a few passages from contemporary travellers and inhabitants of India to prove that at no stage of Indian history has the generality of the population showed any signs of slackness in their endeavours to preserve cow-life from extinction or abuse.

Marco Polo, the Venetian traveller who was the first man to give us an account of the thirteenth century conditions of the East, emphasizes the veneration of the Hindus towards the ox in those days of excessive national ordeal and dishonour under the severe yoke of the aggressive Muhammadans who were notorious for their hatred of the Hindu beliefs in the sanctity of cow-life.<sup>1</sup> "The greater part of the idolatrous inhabitants of this kingdom show particular reverence to the ox; none will from any consideration be induced to eat the flesh of oxen. But there is a particular class of men termed *gauji*, who although many of them eat of the flesh, yet they dare not kill the animal; but when they find a carcase whether it had died a natural death or otherwise, the *gauji* eat it; and all descriptions of people daub their houses with cow-dung." Buchanan writing in his *Journal* about his journey through the Carnatic makes the same observations:<sup>2</sup> "The people of this part of the country consider the ox as a living God, who gives them their bread; and in every village there are one or two bulls, to whom weekly or monthly worship is performed. .... On the north of the Cauvery this superstition is not prevalent. The bull is there considered as respectable on account of Iswara having chosen one of them for his steed." Marco Polo observes again:<sup>3</sup> "Those amongst them who pay adoration to the ox, take with them when they go to battle, the hair of a wild bull, which they attach to the manes of their horses, believing its virtue and efficiency to be such, that every one who carries it about with him is secure from all kind of danger." Francois Bernier, travelling in India in the seventeenth century, observes the

1. *The Travels of Marco Polo, the Venetian*, p. 357. Everyman's Library, 1914, with an introduction by John Masefield.

2. Vol. II, p. 174, quoted *Ibid.*, foot-note.

3. *Loc. cit.*, pp. 365-366.

same phenomena even at the Mughal court. According to him,<sup>1</sup> "The *Gentiles* believe in a doctrine similar to that of the *Pythagoreans* with regard to the transmigration of souls, and hold it illegal to kill or eat animals, an exception being made, however, in favour of a few of the second tribe, provided the flesh is not that of the cow or the peacock. For these two animals they feel a peculiar respect, particularly for the cow, imagining that it is by holding to a cow's tail they are to cross the river which separates this life from the next. ....or this superior regard for the cow may more probably be owing to her extraordinary usefulness as being the animal which supplies them milk and butter (a considerable part of their aliment), and which may be considered a source of husbandry, consequently the preserver of life itself." Abbe Dubois, travelling in India towards the close of the eighteenth century, writes<sup>2</sup> that "to eat the flesh of a cow is an ineffaceable defilement. The bare idea of tasting it would be abhorrent to any Hindu." According to Tytler, the current notions among the people of Bengal in the early decades of the last century strongly favour the supreme value put upon cow-life.<sup>3</sup> "The life of a cow is of much greater consequence than the life of a Sooder; and in some parts of the Shasters is reckoned equal to that of a Brahman."

These passages from modern visitors of India have been selected to illustrate the general attitude of the Hindus towards the cow for a cogent reason. By the time these writers visited India, Muhammadan suzerainty over the country was established. "Super-organic evolution" of Herbert Spencer has begun her proselytising influence. The Muhammadans were deliberately trying to treat with contempt the sentiments of the Hindus regarding the cow. Cow-slaughters were openly perpetrated in the face of the Hindus. There is the force of the conqueror-nation's will behind all these phenomena. Yet during these momentous periods of Indian History, Indians never showed signs of disheartedness and indifference towards protecting cow-life. From this, when a retrospective glance is cast upon the ages past when Hindu kingdoms flourished, we must but imagine, and rightly too, that Hindu sentiment must have been quite inveterate as far as any infringement upon cow-life is concerned.

Regal legislation in India towards protecting cow-life has a memorable history of its own. Not only Hindu sovereigns, but Muhammadan conquerors of India have striven their best for the cause of cow-protection. Even when compared with the social legislation of Manu wherein he declares cow-killing to

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1. *Travels in the Moghul Empire*, pp. 326-327, by Francois Bernier. Translated by Archibald Constable. Second Edition. Revised by V. A. Smith, Oxford (1914).

2. *Hindu Manners, Customs and Ceremonies*, p. 193. Translated by H. K. Beauchamp.

3. *Considerations on the Present Political State of India*, Vol. I, p. 263 (1815).

be a *Upapathaka*,<sup>1</sup> and the Hindu law according to Vasistha<sup>2</sup> which inflicts a *Taptakrihkhara* penance upon the perpetrator of cow-slaughter and allied legislation, the attitude and strivings, in general, of the state in India has a favourable comparison and at times a decided advantage over it. We will now set ourselves towards working the history of cow-protection in India from this line of investigation tracing regal legislation as far as available from the infancy of Indian civilization.

Indian history abounds in instances which show in clear terms the genuine efforts of the State towards protecting cow-life. The very constitution of the Hindu is surcharged with veneration towards the cow. "The genuine Hindu *Dharma* exacts from among other things veneration to the Brahmans, respect for the sanctity of animal life in various degrees, and especially veneration for horned cattle, pre-eminently the cow."<sup>3</sup> State action received powerful stimulus from this general legacy of the Aryan *Dharma*.

The regular history of India may be said to begin with the invasion of Alexander.<sup>4</sup> Prior to his invasions, even though we find several sources for writing a regular history of India, much of our material is of a legendary character losing much of precision and utterly unknown to chronological sequence. Thus while we are offered statements full of glosses, we find our endeavours generally futile, whatever may be the output of genuine research by the famous Indologists of the world, as far as chronology is concerned. The historical sense may be said to be the legacy of the Muhammadan conquerors of India.<sup>5</sup> In the other respect of social and economic history, we may say that ancient India may be given the first place among other countries, with the exception of Greece, to have preserved a wealth of material embedded in the epic lore and other sociological documents, only wanting to be unearthed by scholars after systematic study.<sup>6</sup> Thus when we consider the history of cow-protection we have only to deal mostly with the sentimental attitude of the ancient Aryans towards the sanctity of the cow. This we have seen in the earlier chapters.

1. *Laws of Manu*, Ch. xi, verse 60.

2. *Vasistha Dharmasastra*, xxi. 23, S.B.E., Vol. XIV, p. 113.

3. *Oxford History of India*, p. 34. By V. A. Smith, Oxford (1920).

4. *Early History of India*, Introduction p. 1. By V. A. Smith, Oxford University Press, Third Edition, 1914.

5. *Mughal Administration*. Readership lectures of the Patna University, by Jadunath Sarkar.

6. The *Vedas*, especially the *Rig* and *Atharvana Vedas*, *Manu*, *Kautilya*, *Sukra*, and other authors supply us useful mines of information regarding the economic conditions of Ancient India, while the religious beliefs and practices of the Aryans, are to be found in the multitudinous hosts of *Brahmanas*, *Dharmasastras* and *Puranas*. These have not as yet been completely exhausted to give us a final and comprehensive picture of ancient Indian life.

Regular historical evidence regarding State interference is to be found only after Asoka. Buddhist endeavour has completely triumphed in proscribing all forms of Brahmanical sacrifice, and the general legacy of *Dharma*, having for its mainstay the principle of humaneness, was established. The task of Asoka was thus made easier. Especially after his experience of the Kalinga war, Asoka set himself towards the protection of animal life, even waiving the necessity of the royal kitchen to slaughter animals for doling out food and drink to the needy and the poor. His Rock and Pillar Edicts supply us with our main sources of information. Animal hospitals were established by Buddha throughout the country. Asoka made for the efficient organization of such charitable institutions and provided ample facilities for medical treatment to animals. Minor Rock Edict II emphasizes that "Respect for living creatures should be made firm."<sup>1</sup> Pillar Edict V is a lasting testimony to the fervent desires of Asoka in the cause of the protection of animal life,—his special legislation towards the infliction of cruelty upon the bulls during the process of castration is noteworthy, and may be quoted in full.<sup>2</sup> "Thus saith king Priyadarsin, Beloved of the gods:—When I had been consecrated twenty-six years, the following animals were declared unworthy of slaughter, namely, parrots, starlings, ruddy geese, swans, *Nandimukhas*, *Gelatas*, flying-foxes, queen-ants, female tortoises, boneless fish, *Vedaveyakas*, *Ganga-Paputakas*, skates, tortoises and porcupines, hare-like squirrels, twelve-antler stags, bulls set free, household vermins, rhinoceros, grey doves, village pigeons, and all quadrupeds which are neither used nor eaten. She-goats, ewes, and sows, which are with young or in milk, are unworthy of slaughter, and some of their young ones up to six months of age. Cocks shall not be caponed. Chaff containing living things shall not be burnt. Forests shall not be set on fire either for mischief or for the destruction of life. The living shall not be fed with the living. About the full moon of each of the three seasons and the full moon of Taisha, fish may neither be killed nor sold during three days, namely, the fourteenth (and) the fifteenth (of the fortnight) and the first (of the following fortnight), and certainly not on fast days. On the same days these and other species of life also shall not be killed in the elephant forest and fish preserves. On the eighth of (each) fortnight and on the fourteenth and fifteenth, on the Tishya and Punarvasu days, on the full-moon days of the three seasons,—on (such) auspicious days, bulls shall not be castrated: he-goats, rams, boars and such others as are consecrated shall not be castrated. On the Tishya and Punarvasu

1. *Asoka*, Carmichael Lectures (1923), p. 330, by D. R. Bhandarkar, M.A., Ph.D. Cf. Rock Edict III. *Ibid.*, p. 278.

2. *Ibid.*, pp. 314-15.



days, on the full-moon days of the seasons, and during the fortnights connected with the full-moons of the seasons, the branding of horses and oxen shall not be done. Twenty-five jail deliveries have been effected by me, who am consecrated twenty-six years, just in that period." Rock Edict II<sup>1</sup> points to the establishment of *Pinjrapoles* which will be dealt with in greater detail subsequently, and repeats that "King Priyadarsin, Beloved of the gods, established medical treatment of two kinds,—that wholesome for men and that wholesome for animals." Kautilya describing the politico-economic conditions of Ancient India emphasizes the importance of the State regulation of cattle life and meeting their necessities. Special Superintendents of Cows were to be appointed.<sup>2</sup> "He should superintend herds maintained for wages; herds surrendered for a fixed amount of dairy produce; useless and abandoned herds; herds maintained by a share in dairy produce; " classes of herds; cattle that strayed; cattle that are irrecoverably lost; and the amassed quantity of milk and clarified butter." This is in perfect accordance with the Aryan science of *Varta* generally addressed to be the fit occupation of the Vaisyas. "In *Varta* are treated interest, agriculture, commerce and preservation of cows."<sup>4</sup> With the progress of civic action and definite ideas about the province of governmental activity this piece of legislation was incorporated into State activities. Kautilya deals with a breadth of detail with these different methods of the art of cattle-keeping and enjoins upon the Superintendent to see that cows and calves are not put to any inconvenience as regards maintenance and general relief. Towards this effect he recommends a cattle census which would make for greater efficiency as regards the administrative functions of the Superintendent's Office. Selling of cows from among the herds is punishable with an amercement of one-fourth of the value of the cow. To improvise sufficient quantity of milk to the calf during the spring and the summer seasons cows must be milked only one time. In case of default, the cowherd's thumb shall be cut off. "Cattle in calf, a bull, or a milch cow, shall not be slaughtered. He who slaughters or tortures them to death shall be fined 50 panas."<sup>5</sup> Only fresh and boneless flesh of beasts is to be offered for sale by the butchers under penalty of amercements. In the case of Brahmani bulls set free, the owners must see that they are kept in proper control.<sup>6</sup> Hot spirits among the bulls must not be neglected

1. *Ibid.*, p. 276.

2. Bk. II, Ch. xxix. Shamasastri, 2nd Edn. pp. 155-159.

3. Cf. *Laws of Manu*, viii. 231.

4. *Sukraniti*, I. 311-312. Translated by Benoy Kumar Sirkar (Sacred Books of the Hindus). Cf. *Manu*, x. 116, where rearing of cattle is made one of the principal duties of Vaisya.

5. *Arthashastra*, Bk. II, Ch. xxvi.

6. *Sukraniti*, I. 622.

from being brought under control by "putting a string through the nose of a bull" and delinquency in this respect is punishable by state intervention.<sup>1</sup> This would mean that havoc capable of being caused by bulls set free is eliminated and thus public property is saved from destruction. This piece of legislation is laudatory in all its detail, and has all the efficiency which a scrutinizing government can bring about.

Along with this there is the other institution of the Office of the Superintendent of Agriculture, Forest Produce and Pastures.<sup>2</sup> The functions of these Superintendents are to see that there is a sufficient quantity of pastures and grasses available for cattle to feed upon. According to Sukra,<sup>3</sup> the place selected for the construction of a city, especially the king's capital must be "happily provided with resources in grasses and woods". Manu goes even further.<sup>4</sup> "On all sides of a village, a space, one hundred *dhanus* or three *sanyaa*-throws (in breadth) shall be reserved (for pasture), and thrice (that space) round a town." The *Dhanus* literally means a bow's length which is four *Hastas* or about six feet in length, and hence the provision for grass lands about every village must be two hundred yards on all sides which is, taking into consideration the requirements of the live-stock in the village, presumably sufficient if not abundant for rural requirements. This is in perfect agreement with what Sukra has to say<sup>5</sup> about the choice of the site for the construction of the metropolis which must be "happily provided with resources in grasses and woods". Kautilya urges that "pasture grounds shall be opened between any two dangerous places" for reasons of a political nature.<sup>6</sup> Such is the importance attached to pastures and natural grasses of the country in ancient India, that it is not too infrequently urged by ancient Indian diplomats and statesmen that one of the effectual weapons to be used in subduing a recalcitrant noble, or a dangerous enemy is to reduce their supply of grasses by burning all their pasture lands.<sup>7</sup>

When we trace the history of cow-protection during the period intervening the death of Asoka and the reign of Harshavardhana nearly eight and a half centuries, we will be impressed with the fact that it is not favourably comparable with the memorable period of State-action in the cause of cow-protection under the Mauryas. During this period the general movement towards cow-protection has several ebbs. In general we may say that Buddhism remained the moral guide of the populace, with several pitfalls under

1. *Arthasastra*, Bk. II, Ch. xix. (Shamasastri, p. 158.)

2. *Ibid.*, Chs. xxiv and xvii, and *Sukraniti*, II, 317-19 respectively.

3. *Sukraniti*, I. 425-28.

4. *Laws of Manu*, VIII. 237.

5. *Sukraniti*, I. 425-28.

6. *Arthasastra*, Bk. II, Ch. xxxiv. (Shamasastri, p. 172.)

7. *Sukraniti*, IV. vii, 740-41.

Pushyamitra Sunga, the Indo-Bactrian kings and even Samudragupta. The supremacy of Buddhism would mean the maintenance of the law of *Dharma* which has for its main-spring the glorious principle of *Ahimsa*. But under Pushyamitra and even under Samudragupta we find the *Aswamedha* sacrifice reviving which is but the indirect expression of Brahmanical influence upon the State.<sup>1</sup> Resort to sacrifice logically leads to the lowering of the ideas about the sanctity of animal life as was inculcated by Jainism and Buddhism. Again, under Mihiragula and the Hun invasions, Buddhism received a rude rocking of its moral endeavours and was practically crushed under the proud feet of the conquerors<sup>2</sup> even though, later on, it once again revived under the patronage of more liberal kings. Buddhism was unable to maintain its even tenor of life and hence it is natural for us to expect that during this period the general doctrine of *Ahimsa* and *Gorakshan* receded to the background.

But by the time we come to the reign of Harshavardhana, we again find a certain amount of relief and find State-action directing civic action in regard to the sanctity of animal life on earth. Hieun Tsang informs us that "he prohibited the taking of life under severe penalties and caused the use of animal food to cease throughout the five Indias."<sup>3</sup> The strong incentive to this prohibition of taking animal life is to be found in Harsha's zeal towards Buddhism.

The death of Harshavardhana saw the disintegration of his empire which is the last of the Hindu empires in early Indian History that have reached their zenith successively under Asoka Maurya, Kanishka and Samudragupta. Then set in an era of anarchy and internecine warfare which are but the concomitants of an ever-warring congeries of principalities. During this period, we find the movement towards the protection of animal life beginning its career of waning. Instances of Hindu kings striving towards the preservation and sanctity of animal life are few and far between, while our sources of information are too meagre and fragmentary.

Kalhana in his *Rajatarangini* mentions that Gopaditya, a Kashmir king of the sixth century A.D., "did not tolerate except at sacrifices" "the killing of animals".<sup>4</sup> But the mention of the exception conceded to sacrifices leads us to presume that the legislation of the State is not drastic enough, at least to the desirable extent. But the effort is in itself praiseworthy. Again, in the case of Meghavahana, another Kashmiri king, we are informed by Kalhana<sup>5</sup> that "in the reign of this king, who hated killing like

1. *Early History of India*. By V. A. Smith. 3rd Edn. (1914), pp. 200 and 288, respectively.

2. *Ibid.*, pp. 203 and 319.

3. *Records*. Watters, I. p. 344. Quoted in the *History of Medieval Hindu India*, Vol. I, By Prof. C. V. Vaidya. Cf. Smith, *E. H. I.*, pp. 181 and 344.

4. I. 344. Stein. Vol. I, p. 51.

5. *Ibid.*, III. 7, *Ibid.*, I, 72.

a Jaina, the effigy of an animal in ghee was used in sacrifice (*Kratu*) and one in pastry at the 'offering to the spirits' (*Bhutabali*)." Jainism is emphatically triumphant here in preaching the most humane doctrine of *Ahimsa* and trumpeting the utter futility of sacrifices which are only practical expressions of misdirected outlay and effort. Again, take another passage from the *Rajatarangini*:<sup>1</sup> "On the lake reaching to the brink of the horizon, he established by his own authority a prohibition against the killing of fish and birds, which was to the end of the world." In this case, King Anantivarman of Kashmir (A.D. 855-6 to 883) building a city bearing his name on the banks of Vitasi "where she leaves the waters of the *Mahapadma* (lake)" orders prohibition of killing birds and fish—a supreme act in the cause of *Ahimsa*. We need not mention in this connection the sanctity of the cow which will be extremely superfluous.

The next is a glimpse we get of the efforts of Kumarapala, King of Gujerat, after his conversion to Jainism in A.D. 1159. Dr. Smith sums up his efforts in the following brilliant passage:<sup>2</sup> "In the twelfth century, Kumarapala, King of Gujerat in Western India, after his conversion to Jainism in A.D. 1159, took up the doctrine of the sanctity of animal life with the most inordinate zeal, and imposed severe penalties upon the violators of his rules. An unlucky merchant who had committed the atrocious crime of cracking a louse, was brought before the special court at Anhilwara and punished by the confiscation of his whole property, the proceeds of which were devoted to the building of a temple. Another wretch, who had outraged the sanctity of the capital by bringing in a dish of raw meat, was put to death. The special court constituted by Kumara-pala had functions similar to those of Asoka's censors, and the working of the latter institution sheds much light upon the unrecorded proceedings of the earlier one." Kumarapala obviously had a strong desire to imitate his predecessor Asoka and in his attempts towards precision he lent himself to overdrawn acts of legislation which are open to objection.

(To be Concluded.)

1. V. 119. Stein, Vol. I, p. 201.

2. *Early History of India*, p. 181. Smith obtains his information from Buhler's *Ueber Das Leben Des Jaina Monches Hemachandra* (1899).

# SURYAPRAGNAPTI.

BY DR. R. SHAMA SASTRY, B.A., PH.D., M.R.A.S.

(Continued from Vol. XVI, No. 3.)

## The Kula Nakshatras of New Moons.

THE Śravishṭhi new moon happens in Kula Nakshatra named Magha according to popular view, but really in the Kula Nakshatra of Pushya. In popular parlance though new moon has passed and the Pratipad has come in, it is usual to call the next day still new moon day. Likewise,

The 2nd when  $11 + \frac{14}{62} + \frac{18}{67}$  muhurtas remain in Anūrāḍha.

The 3rd when  $29 + \frac{49}{62} + \frac{31}{67}$  " " in Viśākha.

The 4th when  $24 + \frac{27}{62} + \frac{45}{67}$  " " in Anūrāḍha.

The 5th when  $43 + 0 + \frac{58}{67}$  " " in Viśākha.

Then Paushi new moon may happen in Pūrvāshāḍha or Uttarāshāḍha according to popular view, but in reality in Mūla, Pūrvāshāḍha or Uttarāshāḍha.

The 1st when  $28 + \frac{26}{62} + \frac{6}{67}$  muhurtas have passed in Pūrvāshāḍha.

The 2nd when  $2 + \frac{19}{62} + \frac{19}{67}$  " " "

The 3rd intercalary when  $11 + \frac{59}{62} + \frac{38}{67}$  have passed in Uttarāshāḍha.

The 4th when  $15 + \frac{56}{62} + \frac{46}{67}$  muhurtas have passed in Pūrvāshāḍha.

The 5th when  $19 + \frac{5}{62} + \frac{59}{67}$  " " in Mūla.

Then Maghi new moon may happen in Abhijit, Śravaṇa or Dhanishṭha, according to popular view, but really Uttarāshāḍha, Abhijit or Śravaṇa.

The 1st when  $10 + \frac{26}{62} + \frac{8}{67}$  muhurtas have passed in Śravaṇa.

The 2nd when  $3 + \frac{26}{62} + \frac{20}{67}$  " " in Abhijit.

The 3rd when  $23 + \frac{39}{62} + \frac{35}{67}$  " " in Śravaṇa.

The 4th when  $6 + \frac{37}{62} + \frac{47}{67}$  " " in Abhijit.

The 5th when  $25 + \frac{10}{62} + \frac{60}{67}$  " " in Uttarāshāḍha.

The Phalguni new moon may happen in Śatabhishak or Pūrvābhādra-pada according to popular view, but really Dhanishṭha, Śatabhishak or Pūrvābhādra.

The 1st when  $6 + \frac{31}{62} + \frac{8}{67}$  muhurtas have passed in Pūrvābhādrapada.

The 2nd when  $20 + \frac{42}{62} + \frac{22}{67}$  " " in Dhanishṭha.

The 3rd when  $14 + \frac{44}{62} + \frac{36}{67}$  " " in Pūrvāshāḍha.

The 4th when  $3 + \frac{17}{62} + \frac{49}{67}$  " " in Śatabhishak.

The 5th when  $6 + \frac{52}{62} + \frac{62}{67}$  " " in Dhanishṭha.

Then Chaitra new moon may happen in Uttarābhādrapada, Revati, or Aśvini, according to popular view, but really Pūrvābhādrapada, Uttarābhādrapada or Revati.

The 1st when  $37 + \frac{36}{82} + \frac{10}{67}$  muhurtas have expired in Uttarābhādra.

The 2nd when  $11 + \frac{9}{82} + \frac{28}{67}$  " " "

The 3rd when  $5 + \frac{49}{82} + \frac{37}{67}$  " " in Revati.

The 4th when  $23 + \frac{22}{82} + \frac{50}{67}$  " " in Uttarābhādra.

The 5th when  $27 + \frac{57}{82} + \frac{63}{67}$  " " in Pūrvābhādrapada.

The Vaishākhi new moon may occur in Bharāṇi or Kṛittika in popular view, but really Revati, Aśvini or Bharāṇi.

The 1st when  $28 + \frac{41}{82} + \frac{11}{67}$  muhurtas have expired in Aśvini.

The 2nd when  $2 + \frac{39}{82} + \frac{28}{67}$  " " "

The 3rd when  $11 + \frac{54}{82} + \frac{38}{67}$  " " in Bharāṇi.

The 4th when  $15 + \frac{27}{82} + \frac{51}{67}$  " " in Aśvini.

The 5th when  $19 + 0 + \frac{64}{67}$  " " in Revati.

Belief and truth differ from each other in other cases. Accordingly the Śravishṭhi new moon may occur in Kula or Upakula constellations but not in Kulopakula constellations. Similarly Mārgaśīrshi, Maghi, Phalguni and Ashāḍhi new moons happen either in Kula or Upakula. The rest happen only in Kulopakula.

What is to be specially remembered in this connection is this:—According to popular belief the new moon occurs in the 15th or 14th constellation from that in which full moon happens. Thus when Śravishṭhi full moon occurs in Dhanishṭha or Śravishṭha as it is also called, the new moon that precedes it must have been in Magha. Likewise the full moon in Magha is followed by new moon in Śravishṭha which is 15th from Magha; full moon in Uttarābhādrapada is followed by new moon in Uttaraphalguni, the 15th from the former. There is, however, the Abhijit between them. But as it comes in only for a short time with the moon, it may be dropped out of account. Accordingly the *Samavayanga Sūtra* says that in Jambudvīpa it is usual to deal with only 27 stars leaving off the Abhijit. Hence it is not included in calculation.

Hence Uttaraphalguni may be regarded as the 15th from Uttarābhādra. This is said regarding Bhādrapada month. But when the full moon takes place in Uttaraphalguni, then it will be followed by the new moon in Pūrvābhādrapada which is 14th from Uttaraphalguni. This is said regarding the month of Phālguna.

The full moon in Aśvini will be followed by the new moon in Chitra (Chaitri), which is 15th from Aśvini. This is according to popular view.

But in reality no new moon in the month of Āśvayuja occurs in Chitra. Similarly the full moon in Chitra will be followed by new moon in Āśvini according to popular view. But really no new moon in the month of Chaitra occurs in Āśvini. Hence the Sūtra must be taken to refer to Chaitramāsa in Āśvini.

The full moon in Kṛittika will be preceded by new moon in Viśākha which is 15th from Kṛittika in the reverse order. When full moon happens in Viśākha, it will be followed by new moon in Kṛittika, which is 14th from Viśākha, if counted back. This is said regarding Kārtika and Vaiśākha months.

The appearances of the constellations are thus described:—

Abhijit	...	...	Cow head.
Śravaṇa	...	...	Fish.
Dhanishṭha	...	...	Bird.
Śatabhishak	...	...	Flower.
Pūrvābhādra }	...	...	Lake.
Uttarābhādra }	...	...	
Revati	...	...	Boat.
Āśvini	...	...	Horse's head.
Bharani	...	...	Bhaga.
Kṛittika	...	...	Knife.
Rohini	...	...	Cart (Wheel).
Mṛigaśīrsha	...	...	Deer's head.
Ārdra	...	...	Drops of blood.
Punarvasu	...	...	Balance.
Pushya	...	...	Pendal.
Āślēsha	...	...	Flag.
Magha	...	...	Fort wall.
Pūrvaphalguni }	...	...	Palanquin.
Uttara „ }	...	...	
Hasta	...	...	Hand.
Chitra	...	...	Face of a man.
Svāti	...	...	Cheva ?= Pearl.
Viśākha	...	...	Screw or a nail.
Anūrādhā	...	...	Damani ? Umbrella.
Jyēshṭha	...	...	Necklace.
Mūla	...	...	Elephant=Tusk.
Pūrvāshāḍha }	...	...	Square ?
Uttarāshāḍha }	...	...	

## Constellations and Days and Shadow.

Uttarāshāḍha	}	Rainy 1st month	14 days.
Abhijit			7 "
Śravaṇa			8 "
Dhanishṭha			1 "
			<hr/>
			30 days of Śravaṇa month, shadow 2 padas and 4 angulas.
Dhanishṭha	}	Rainy 2nd month	14 days.
Śatabhishak			7 "
Pūrvābhādrapada			8 "
Uttarābhādrapada			1 "
			<hr/>
			30 days of Bhādrapada, shadow 2 padas and 8 angulas.
Uttarābhādrapada	}	Rainy 3rd month	14 days.
Revati			15 "
Āśvini			1 "
			<hr/>
			30 days of Āśvayuja, shadow 2 padas and 12 angulas or 3 padas.
Āśvini	}	Rainy 4th month	14 days.
Bharṇi			15 "
Kṛittika			1 "
			<hr/>
			30 days of Kārtika, shadow 3 padas and 4 angulas.
Kṛittika	}	Hēmana 1st month	14 days.
Rohiṇi			15 "
Mṛigaśirsha or Santhana			1 "
			<hr/>
			30 days of Mārgaśirsha, shadow 3 padas and 8 angulas.
Mṛigaśirsha	}	Hēmana 2nd month	14 days.
Ārdra			7 "
Punarvasu			8 "
Pushya			1 "
			<hr/>
			30 days of Pushya, shadow 4 padas.

On the last day of Pushya the shadow measures 4 padas.



Pushya	}	Hēmanṭa	14 days.	
Āśleṣha		3rd month	15 "	
Magha			1 "	
			<hr/>	30 days of Māgha, shadow 3 padas and 8 angulas on the last day.
Magha	}	Hēmanṭa	14 days.	
Pūrvaphalguni		4th month	15 "	
Uttaraphalguni			1 "	
			<hr/>	30 days of Phālguna, shadow 3 padas and 4 angulas on the last day.
Uttaraphalguni	}	Grīṣma	14 days.	
Hasta		1st month	15 "	
Chitra			1 "	
			<hr/>	30 days of Chaitra, shadow 3 padas on the last day.
Chitra	}	Grīṣma	14 days.	
Svāti		2nd month	15 "	
Viśākha			1 "	
			<hr/>	30 days of Vaiśākha, shadow 2 padas and 8 angulas.
Viśākha	}	Grīṣma	14 days.	
Anūrāḍha		3rd month	15 "	
Jyēṣṭha & Mūla			1 "	
			<hr/>	30 days of Jyēṣṭha, shadow 2 padas and 4 angulas.
Mūla	}	Grīṣma	14 days.	
Pūrvāṣāḍha		4th month	15 "	
Uttarāṣāḍha			1 "	
			<hr/>	30 days of Āṣāḍha, shadow 2 padas.

### How to Find Out Ayanas.

When the length of the shadow on any lunar day (tithi) of any parva is sought to be known, then all the parvas of the previous cycle (Yuga) are counted, and multiplied by 15. To the product is added the sum of all the lunar days elapsed up to the lunar day in question. Then the sum is divided

by 186 (186 being the number of lunar days in an Ayana of 183 solar days) (solar diurnal circles). If the quotient happens to be an odd number like 1, 3, 5, 7 or 9, then the near Dakṣiṇāyana is to be regarded as current. If even like 2, 4, 6, 8, or 10, then it is to be considered as Uttarāyana.

If the sum is not divisible by 186 or a remainder remains, then the remainder is multiplied by 4 and divided by one-fourth of the total number of parvas, *i.e.*, 31. The quotient is the number of the angulas of the shadow cast, either more than the constant fixed for the Dakṣiṇāyana or less than the constant fixed for the Uttarāyana.

The reason for this is as follows:—

If in 186 lunar days 24 angulas of shadow are obtained, how many will they be in one day?

186 days	...	...	24 angulas.
1 „	...	...	$\frac{24}{186} = \frac{4}{31}$ angulas.

This is the constant. This increases at the rate of  $\frac{4}{31}$  angulas per lunar day upto 4 padas in the Dakṣiṇāyana. On the first day, *i.e.*, Śrāvaṇa Bahula Pratipad, the shadow will be 2 padas; this is the minimum. Similarly in the Uttarāyana commencing on the seventh lunar day of Māgha Bahula the shadow decreases from four padas at the rate of  $\frac{4}{31}$  angulas per day to 2 padas at the end of Uttarāyana. This is in the first year of the Yuga. In the second year the increase and decrease begin to take place on Śrāvaṇa Bahula 13 and Māgha Śukla 4. In the third year the dates are Śrāvaṇa Śukla 10 and Māgha Bahula 1. In the fourth year the increase begins on Śrāvaṇa Bahula 7 and the decrease on Māgha Bahula 13. In the fifth the dates are Śrāvaṇa Śukla 4 and Māgha Śukla 10. This is according to the ancient teachers (not mentioned in the Gāthas here).

If one asks what is the measure of shadow on the 85th parva day from the beginning of the yuga or cycle, we take 84th parva and find the measure on the 5th day after it. Now  $84 \times 15 = 1260$  and add 5 to it. Hence it becomes 1265.

This divided by 186, is  $= \frac{1265}{186} = 6 + \frac{149}{186}$  *i.e.*, 6 ayanas and 149 days;

$149 \times \frac{4}{31} = \frac{596}{31} = 19\frac{7}{31} = \text{One pada (12 angulas) + } 7\frac{7}{31} \text{ angulas.}$

Now the 6th ayana is Uttara and the 7th is Dakṣiṇa. Hence there is increase on the constant of two padas of shadow; *i.e.*, the shadow measure is 3 padas +  $7\frac{7}{31}$  angulas = 3 padas + 7 angulas + 1 yava +  $\frac{25}{31}$  (One angula = 8 yavas) on the 85th parva.

If it be asked what is the measure of the shadow on 97th parva panchami, we proceed as follows:—

Taking 96th parva, we multiply it by 15.

$96 \times 15 = 1440$ . With 5 it becomes 1445. Divided by 186, this gives ayanas.  $\frac{1445}{186} = 7 + \frac{148}{186}$ . 143 of the remainder is the number of days.

$$\therefore 143 \times \frac{4}{81} = \frac{572}{81} = 18 + \frac{4}{81} \text{ angulas.}$$

$$= \text{One pada} + 6\frac{4}{81} \text{ angulas.}$$

$\therefore$  The eighth being Uttarāyana, the shadow has decreased from 4 padas, one pada and  $6\frac{4}{81}$  angulas. Hence on the day the shadow  $(4 \times 12 = 48) - 18\frac{4}{81}$  angulas = 2 padas and  $5\frac{7}{81}$  angulas.

Similarly applying the same process we can find out the number of elapsed days in any ayana, provided the shadow measure above the constant of 2 padas is given. For example :

In the Dakṣiṇāyana the shadow is 4 angulas above 2 padas. How many days have then elapsed ?

The increase is  $\frac{4}{81}$  angulas per day. Hence 4 angulas will be gained in  $\frac{81}{4} \times 4 = 31$  days.

Likewise if 4 padas decrease by 8 angulas in the Uttarāyana, then the number of days past will be  $\frac{81}{4} \times 8 = 62$ .

In the month of Āshāḍha, the shadow cast, when  $\frac{1}{4}$  of the day is past or remains, is equal to the length of the thing casting the shadow.

Then the text goes on to describe the situations of the constellations north or south, etc., to the moon and the Yōjanas of the diurnal circles of the moon.

The deities of the constellations are Abhijit, Brahma ; Śravaṇa, Viṣṇu ; then Vasu, Varuṇa, Aja, Pūsha, Gandharva, Yama, Agni, Prajāpati, Soma, Rudra, Aditi, Bṛihaspati, Nāga, Piṭṛi, Bhaga, Aryama, Savitṛi, Tvaṣṭa, Vāyu, Indrāgni, Mitra, Indra, Nirriti, Apah, and Viśvedevas (all Vedic).

Then the text enumerates the names of the muhurtas :—

1 Rudra	11 Īśāna	21 Gandharva
2 Śrēyan	12 Tvaṣṭa	22 Agnivisya
3 Mitra	13 Bhavitātma	23 Śatavṛishabha
4 Vāyu	14 Vaiśravaṇa	24 Atapavan
5 Supita	15 Varuṇa	25 Amama
6 Abhichandra	16 Ānanda	26 Rinavan
7 Mahendra	17 Vijaya	27 Bhauma
8 Balavan	18 Viśvasena	28 Vṛishabha
9 Brahma	19 Prajāpatya	29 Sarvārtha
10 Bahusutya	20 Upasama	30 Rākshasa

Then the text enumerates the names of 15 days and nights, which are different from those given in the *Taittirīya Āranyaka*.

Then the text goes to say something of Rāhu, the demon believed to be causing the eclipses of the sun and the moon. There are two Rāhus; one Parva Rāhu and another Dhruva Rāhu. The Dhruva Rāhu is of black disc (Vimāna) and moves 4 angulas below the moon. The moon's disc is divided into 62 parts. Of these, 2 parts are always uncovered by Rāhu. The rest 60 parts are covered by Rāhu at the rate of 4 parts a day during the 15 days of the dark half of the month and uncovered in the other half at the same rate. The time taken by the 4 parts to increase or decrease is what is called Tithi, lunar day.

As regards Parva Rāhu, something will be said later on. Then the text enumerates the names of the 30 tithis of a month ; and mentions the names of the Gotras of the 28 stars, such as Garga, Mandalya, Sankhayana, etc.

*The stars and their situation with reference to the moon's ecliptic circle :—*

Of the 28 constellations there are some which are situated to the south, and some to the north, and a few both to the north and the south of the moon's ecliptic.

Mrigaśīrah, Ārdra, Pushya, Āślēsha, Hasta and Mūla, these six are to the south, and outside the 15th circle of the moon.

Abhijit, Śravaṇa, Dhanishṭha, Śatabhishak, Pūrvābhādrapada, Uttarābhādrapada, Revati, Aśvini, Bharani, Pūrvaphalguni, Uttaraphalguni and Svāti, these twelve are to the north; when the moon is in conjunction with any of these, he may be in any one of his circles.

Kṛittika, Rohiṇi, Punarvasu, Magha, Chitra, Viśākha, Anūrādhā, and according to some Jyēsthā also are situated both north and south and partake of both the sides (Pramarda Yoga or Ubhaya-yōgi).

Uttarāshāḍha and Pūrvāshāḍha are to the south but unite with the moon in Pramarda Yoga, *i.e.*, outside the circle. Jyeshtha alone has Pramarda Yoga with the moon.

### The Lunar Diurnal Circles.

There are fifteen lunar diurnal circles. There are some circles which always pass through some constellations. There are others through which the sun, the moon and the stars also pass. There are a few circles through which the sun never moves.

The following eight circles always pass through some constellations :—

The first circle passes through (1) Abhijit, (2) Śravaṇa, (3) Dhanishṭha, (4) Śatabhishak, (5) two Bhādrapadas, (7) Revati, (8) Āśvini, (9) Bharāṇi, (10) & (11) two Phalgunis, and (12) Svāti.

The 3rd circle through Punarvasu and Magha.

The 6th                 ,,                 Kṛittika

The 7th                   "                   Rohini and Chitra.

The 8th circle though	Viśākha
The 10th            "	Anūrādha
The 11th           "	Jyeshtha
The 15th           "	Mṛigaśirah, Ārdra, Pushya, Āślesha, Hasta, Mūla and the two Āshāḍhas.

Of these, the first six are, however, outside the fifteenth circle; still as they are very near to it, they are counted as such. Hence nothing of inconsistency in the statement.

Similarly the following seven out of the fifteen circles do not pass through any constellation:—The second, fourth, fifth, ninth, twelfth, thirteenth and the fourteenth circle.

The following four are common to both the sun, the moon and the constellations:—The first, the second, the eleventh and the fifteenth circle.

The following five are beyond the sun's path:—The sixth, seventh, eighth, ninth and the tenth circle.

Accordingly it is clear that the first, second, third, fourth, fifth, eleventh, twelfth, thirteenth, fourteenth, and the fifteenth, are common to the sun also.

The rest, sixth, seventh, eighth, ninth, and tenth are peculiar to the moon *i.e.*, the sun never passes through them.

Now in those cases in which the sun's ecliptic circle passes beyond the moon's, the distance between them is thus determined by ancient teachers:—

To understand this we have to know the rate of increase or decrease in the circumference of the sun's and the moon's diurnal circles. The circumference of the sun's diurnal circles increases at the rate of  $2\frac{4}{8}\frac{8}{1}$  yōjanas per circle from the innermost circle. Hence in 183 days, the total increase or decrease from the outermost diurnal circle is  $\frac{170}{81} \times 183 = 510$  yōjanas.

Now for the moon it is  $509\frac{2}{8}\frac{5}{1} + \frac{4}{7}$  of  $\frac{1}{81}$  yōjanas, for the increase or decrease in one day for the moon is  $36\frac{2}{8}\frac{5}{1} + \frac{4}{7}$  of  $\frac{1}{81}$  yōjana.

Hence in 14 days it is  $(36 + \frac{2}{8}\frac{5}{1} + \frac{4}{7} \text{ of } \frac{1}{81}) \times 14 = \frac{155}{427} \times 14 = 5\frac{1}{81}\frac{0}{1} = 509 + \frac{5}{81}\frac{2}{1}$  yōjanas.

Now as stated in the Jambu-prajñapti, the distance between any two diurnal circles of the sun is 2 yōjanas only, and the distance between any two diurnal circles of the moon is  $35 + \frac{8}{8}\frac{0}{1} + \frac{4}{7}$  of  $\frac{1}{81}$  yōjana. The same *plus* the measure of the respective diameters of circles of the sun and the moon becomes the measure of the rate in the sun's or the moon's increase or decrease per respective diurnal circle; for example, the measure of the diameter of the sun's circle is  $\frac{4}{8}\frac{8}{1}$  yōjanas. Hence  $2 + \frac{4}{8}\frac{8}{1}$  yōjanas is the rate of increase or decrease per diurnal circle of the sun. Likewise the distance

between any two diurnal circles of the moon *plus* the diameter of his circle is the rate of increase or decrease per diurnal circle of the moon.

Thus the total of increase or decrease at the final diurnal circle of the sun or the moon is the distance between any two diurnal circles of the sun or the moon.

Now if it is desired to deduce the rate of increase in the diameter of the diurnal circles of the sun or the moon from the total increase or decrease, the following is the method, as stated by ancient teachers:—

Now the sun's total of increase in 183 days is, as already shown, 510 yōjanas. Hence in one day it is  $\frac{510}{183} = 2\frac{48}{81}$  yōjanas per circle.

Likewise for the moon:—

The total increase in 14 lunar days is  $509\frac{58}{81}$ .

Hence in one day,  $509\frac{58}{81} \div 14 = 36 + \frac{25}{81} + \frac{4}{7}$  of  $\frac{1}{81}$  yōjana.

Now the first diurnal circle of the sun is completely enclosed in the moon's diurnal circle; but  $\frac{8}{81}$  parts of the moon's still remain outside, for the sun's is less than the moon's by  $\frac{8}{81}$  parts.

Then in the interval before the second diurnal circle of the moon there can be 12 sun's paths. Now the distance between two moon's paths is  $35 + \frac{80}{81} + \frac{4}{7}$  of  $\frac{1}{81}$  yōjanas or  $\frac{2165}{81}$  times one-sixtieth parts of a yōjana.

The sun's increased circle is  $2\frac{48}{81}$  yōjanas or  $\frac{170}{81}$  times one-sixtieth parts of a yōjana.

Dividing the former by the latter, we have  $\frac{2165}{170} \times \frac{81}{81} = 12\frac{125}{170}$ ; that is, twelve circles of the sun can be enclosed in the interval before the 2nd moon's circle. There remain still  $\frac{125}{170} + \frac{8}{81} = 2$  yōjanas +  $\frac{1}{81}$  of a yōjana +  $\frac{4}{7}$  of  $\frac{1}{81}$  of a yōjana.

Taking this away from  $2\frac{48}{81}$  of another diurnal circle measure of the sun as equal to  $2\frac{48}{81} - (2\frac{1}{81} + \frac{4}{7})$ , we have  $\frac{86}{81} + \frac{8}{7}$  of  $\frac{1}{81}$  yōjanas of the sun mingled with the second diurnal circle of the moon.

(i) Now the rate of increase per moon's circle is  $36 + \frac{25}{81} + \frac{4}{7}$  of  $\frac{1}{81}$ .

(ii) and the distance between two circles of the moon is  $35 + \frac{80}{81} + \frac{4}{7}$ .

Hence i—ii is the diameter of the moon's circle, i.e.,  $(36 + \frac{25}{81} + \frac{4}{7})$  of  $\frac{1}{81}$  —  $(35 + \frac{80}{81} + \frac{4}{7}) = \frac{55}{81}$  yōjanas.

Hence deducting the remainder,  $\frac{36}{81} + \frac{3}{7}$  of  $\frac{1}{81}$  of the sun's 13th circle from the 2nd circle of the moon,  $\frac{55}{81} - (\frac{36}{81} + \frac{3}{7}) =$  we have  $\frac{19}{81} + \frac{4}{7}$  of the moon's circle outside the sun's circle.

Now for the space between the second and the third circles of the moon, we have  $35 + \frac{80}{81} + \frac{4}{7}$  of  $\frac{1}{81}$  yōjanas. In this space there will be enclosed, as already pointed out, 12 circles of the sun, leaving  $2 + \frac{8}{81} + \frac{4}{7}$  of  $\frac{1}{81}$

yōjanas in space, which with the remainder  $\frac{19}{81} + \frac{4}{7}$  of the second circle will amount to  $2 + \frac{28}{81} + \frac{1}{7}$  of  $\frac{1}{81}$  yōjanas; *i.e.*, after the second circle of the moon and before his third circle there will be 12 solar paths and next to it  $2 + \frac{28}{81} + \frac{1}{7}$  yōjanas of the sun's circle will be enclosed in the space itself, leaving  $2 \frac{48}{81} - (2 \frac{28}{81} + \frac{1}{7}) = \frac{24}{81} + \frac{6}{7}$  yōjanas to mingle with the moon's third diurnal circle. Deducting this from the third circle of the moon as  $\frac{55}{81} - (\frac{24}{81} + \frac{6}{7})$ , we have  $\frac{31}{81} + \frac{1}{7}$  of  $\frac{1}{81}$  of the moon's third circle outside.

Again, in the next space there will be 12 paths of the sun +  $2 + \frac{3}{81} + \frac{4}{7}$  of  $\frac{1}{81}$  yōjanas which with the remainder of the previous circle  $\frac{31}{81} + \frac{1}{7}$  will amount to  $2 + \frac{34}{81} + \frac{5}{7}$ ; *i.e.*, after the third circle there will be 12 solar paths and thereafter the thirteenth will after passing 2 yōjanas come in the space between the third and the fourth circles to the extent of  $\frac{34}{81} + \frac{5}{7}$  of  $\frac{1}{81}$  yōjanas, requiring  $\frac{18}{81} + \frac{1}{7}$  of  $\frac{1}{81}$  yōjanas for its completion.

Hence deducting  $\frac{18}{81} + \frac{1}{7}$  from  $\frac{55}{81}$  of the moon's fourth circle, we have  $\frac{55}{81} - (\frac{18}{81} + \frac{1}{7}) = \frac{42}{81} + \frac{5}{7}$  yōjanas of the moon's fourth circle stretching out.

Again, in the space between the fourth and the fifth circles there will be 12 solar paths +  $2 + \frac{3}{81} + \frac{4}{7}$  of  $\frac{1}{81}$  yōjanas, which with the previous remainder  $\frac{42}{81} + \frac{5}{7}$  will amount to  $\frac{46}{81} + \frac{2}{7}$  yōjanas; *i.e.*, there will be 12 paths and after that, there will be a solar path which passing 2 yōjanas will project in the space between the fourth and the fifth circles to the extent of  $\frac{46}{81} + \frac{2}{7}$  of  $\frac{1}{81}$  yōjanas. Deducting this from the solar circle, we have  $\frac{48}{81} - (\frac{46}{81} + \frac{2}{7}) = \frac{1}{81} + \frac{5}{7}$  of the solar circle mingled with the moon's fifth diurnal circle. Hence  $\frac{55}{81} - (\frac{1}{81} + \frac{5}{7}) = \frac{54}{81} + \frac{2}{7}$  of  $\frac{1}{81}$  of the moon's will be outside.

Thus five lunar internal diurnal circles will be mingled with the solar circles and there will be 12 solar paths in each of the four interval spaces.

Now we shall proceed to deal with the next five lunar circles (from sixth to the tenth) which do not come in contact with the solar paths. The space between the fifth and the sixth lunar paths is  $35 + \frac{30}{81} + \frac{4}{7}$  of  $\frac{1}{81}$  which with the previous remainder  $\frac{54}{81} + \frac{2}{7}$  of  $\frac{1}{81}$  will amount to 2219 of  $\frac{1}{81}$  parts.

Likewise the solar space is  $2 \frac{48}{81}$  yōjanas or  $\frac{170}{81}$  yōjanas. Hence  $\frac{2219 \times 61}{170 \times 61} = 13 \frac{9}{170} + \frac{6}{7}$  of  $\frac{1}{81}$  (left before unnoticed). That is, there will be in this space 13 solar paths and above those paths there will be  $\frac{9}{81}$  yōjanas and  $\frac{6}{7}$  of  $\frac{1}{81}$  yōjanas; beyond this there will be the sixth lunar path measuring  $\frac{56}{81}$  yōjanas. Beyond this and before the next solar path measuring  $\frac{48}{81}$  yōjanas, there will be  $\frac{56}{81} + \frac{1}{7}$  of  $\frac{1}{81}$  yōjanas. Beyond this there will be a solar path. Beyond that there will be space measuring  $35 + \frac{30}{81} + \frac{4}{7} - (\frac{104}{81} + \frac{1}{7} \text{ of } \frac{1}{81})$  yōjanas before the next lunar circle. Then there will be

12 solar paths; and adding together the fractions, we have in this space also 13 solar paths; beyond the thirteenth solar path and before the next lunar path there will be space to the extent of  $\frac{2}{61} + \frac{8}{7}$  of  $\frac{1}{61}$  yojanas. Then the seventh lunar path. Beyond that there will be within a distance of  $\frac{4}{61} + \frac{4}{7}$  of  $\frac{1}{61}$  yojanas another solar path. Thereafter there will be space again to the extent of  $35 + \frac{80}{61} + \frac{4}{7} - (\frac{2}{61} + \frac{4}{7})$  of  $\frac{1}{61}$  yojanas. Here also in this space there will be 12 solar paths; and adding together fractions, we have here also 13 solar paths and beyond the thirteenth solar path and before the eighth lunar path there will be space to the extent of  $\frac{3}{61}$  yojanas. Then the eighth lunar path. Beyond this there will be within a distance of  $\frac{3}{61}$  yojanas a solar path. Then again there will be space to the extent of  $35 + \frac{80}{61} + \frac{4}{7}$  of  $\frac{1}{61} - (\frac{8}{61}) = 34 + \frac{10}{61} + \frac{4}{7}$  of  $\frac{1}{61}$  yojanas. Again 12 solar paths in this space; and adding the fractions 13 solar paths as before. Then beyond the thirteenth solar path and before the ninth lunar path there will be  $\frac{4}{61} + \frac{4}{7}$  of  $\frac{1}{61}$  yojanas as space. Then the ninth lunar path. Beyond that there will be within the space of  $\frac{2}{61} + \frac{8}{7}$  of  $\frac{1}{61}$  yojanas a solar path. Then again there comes the usual lunar space to the extent of  $35 + \frac{80}{61} + \frac{4}{7} - (\frac{6}{61} + \frac{8}{7})$  of  $\frac{1}{61}$  yojanas. Here again adding the fractions, we get 13 solar paths. Beyond the thirteenth solar path and before the tenth lunar path there will be space to the extent of  $\frac{5}{61} + \frac{1}{7}$  of  $\frac{1}{61}$  yojanas. Then there comes the lunar path (Chandra-maṇḍala, moon's disc) and beyond that there will be within a space of  $\frac{9}{61} + \frac{6}{7}$  of  $\frac{1}{61}$  yojanas the solar path (Sūryamaṇḍala, sun's disc or solar path). Then again there comes the usual space to the extent of  $35 + \frac{80}{61} + \frac{4}{7} - (\frac{5}{61} + \frac{6}{7})$  yojanas.

Then again 12 or rather 13 solar paths, adding fractions together. Then beyond the thirteenth solar path and before the eleventh lunar path there will be space to the extent of  $\frac{6}{61} + \frac{5}{7}$  of  $\frac{1}{61}$  yojanas.

Thus there are five lunar paths not connected with the solar paths, and there are thirteen lunar paths in each of the six intervening spaces.

Now  $\frac{5}{61} + \frac{2}{7}$  of  $\frac{1}{61}$  of the eleventh lunar path are found out of the solar path;  $\frac{1}{61} + \frac{5}{7}$  of  $\frac{1}{61}$  of that path are found connected with the solar path. Hence the next lunar space is equal to  $35 + \frac{80}{61} + \frac{4}{7} - (\frac{4}{61} + \frac{2}{7}) = 34 + \frac{4}{61} + \frac{2}{7}$  of  $\frac{1}{61}$ . Hence there will be only 12 solar paths with a space of  $\frac{7}{61} + \frac{2}{7}$  of  $\frac{1}{61}$  yojanas separating the twelfth solar path from the twelfth lunar path which is thus found in space separated from the next solar path by  $\frac{4}{61} + \frac{5}{7}$  of  $\frac{1}{61}$  yojanas. Hence only  $\frac{1}{61} + \frac{2}{7}$  of  $\frac{1}{61}$  of it come in contact with



the solar path. Hence the solar path stretches out of the twelfth lunar path to the extent of  $\frac{3}{8}\frac{4}{1} + \frac{5}{7}$  of  $\frac{1}{6}\frac{1}{1}$  yōjanas. Then there comes again the lunar space to the extent of  $35 + \frac{3}{8}\frac{0}{1} + \frac{4}{7} - (\frac{3}{8}\frac{4}{1} + \frac{5}{7}) = 34 + \frac{5}{8}\frac{6}{1} + \frac{6}{7}$  of  $\frac{1}{6}\frac{1}{1}$  yōjanas. Here also the space includes twelve solar paths leaving  $\frac{9}{8}\frac{0}{1} + \frac{6}{7}$  of  $\frac{1}{6}\frac{1}{1}$  yōjanas beyond the twelfth solar path and separating the thirteenth lunar path which is found in space beyond the solar path to the extent of  $\frac{3}{8}\frac{1}{1} + \frac{1}{7}$  of  $\frac{1}{6}\frac{1}{1}$  and in connection with it to the extent of  $\frac{2}{8}\frac{4}{1} + \frac{6}{7}$  of  $\frac{1}{6}\frac{1}{1}$  yōjanas. Hence the solar path stretches out of the thirteenth lunar path to the extent of  $\frac{2}{8}\frac{3}{1} + \frac{1}{7}$  of  $\frac{1}{6}\frac{1}{1}$  yōjanas. Hence the next lunar space  $35 + \frac{3}{8}\frac{0}{1} + \frac{4}{7}$  of  $\frac{1}{6}\frac{1}{1}$  is lessened by this amount, i.e.,  $\frac{2}{8}\frac{3}{1} + \frac{1}{7}$  of  $\frac{1}{6}\frac{1}{1}$ . Here also there are 12 solar paths and beyond the twelfth there is within a distance of  $\frac{1}{8}\frac{0}{1} + \frac{3}{7}$  of  $\frac{1}{6}\frac{1}{1}$  yōjanas the fourteenth lunar path. This path is in space out of the solar path to the extent of  $\frac{1}{8}\frac{9}{1} + \frac{4}{7}$  of  $\frac{1}{6}\frac{1}{1}$  yōjanas. The remaining  $\frac{3}{8}\frac{6}{1} + \frac{3}{7}$  of  $\frac{1}{6}\frac{1}{1}$  yōjanas are in contact with the solar path. Hence  $\frac{1}{8}\frac{1}{1} + \frac{4}{7}$  of  $\frac{1}{6}\frac{1}{1}$  of the solar path are beyond the fourteenth lunar path. Hence the next lunar space is equal to  $35 + \frac{3}{8}\frac{0}{1} + \frac{4}{7} - (\frac{1}{8}\frac{1}{1} + \frac{4}{7}) = 35 + \frac{1}{8}\frac{9}{1}$  yōjanas. Here also there will be 12 solar paths. And beyond the twelfth solar path there will be the fifteenth lunar path at a distance of  $\frac{5}{8}\frac{1}{1} + \frac{4}{7}$  yōjanas. This lunar path falls in space separated from the last solar path by  $\frac{8}{8}\frac{1}{1}$  yōjanas. The remaining  $\frac{4}{8}\frac{8}{1}$  parts are in contact with the solar path.

Thus the five lunar paths from the eleventh to the fifteenth are connected with the solar paths; and in each of the four intervening lunar spaces there are 12 solar paths.

#### Tithi or Lunar Day.

A Tithi or lunar day is equal to  $\frac{6}{8}\frac{1}{2}$  parts of a day. Hence a day being divided into 30 muhurtas, a tithi will be equal to  $\frac{6}{8}\frac{1}{2} \times 30$  muhurtas =  $29\frac{3}{8}\frac{2}{2}$  muhurtas.

The Tithis are of two kinds : (1) day tithis and night tithis; both kinds are divided into a week of five lunar days, called (1) Nanda, (2) Bhadra, (3) Jaya, (4) Tuchchha, (5) Pūrṇa in the case of day tithis; and (1) Ugravati, (2) Bhogavati, (3) Yaśōmati, (4) Sarvasiddha, (5) Śubhanāma, in the case of night tithis. Thus three weeks of day tithis and three weeks of night tithis will make fifteen complete lunar days.

*Success in work undertaken on lunar days with special diet :—*Curd diet on the Kṛittika day will enable a man to succeed in his works. Rōhīṇi, flesh; Mṛigaśirah, flesh of wild beasts; Ārdra, butter; Punarvasu, clarified butter; Pushya, milk; Āślēsha, the flesh of Dīpaka; Magha, Kasoti; Pūrva-phalguni, the flesh of Medhaka, an animal; Uttara, the flesh of Naksi;

Hasta, Vardana (?) ; Chitra, Mudgasupa ; Svāti, fruits ; Viśākha, Asitti (?) ; Anūrādha, vegetables ; Jyēshṭha, Lathiya (?) ; Pūrvāshāḍha, Amalaka (Jujube) ; Uttarāshāḍha, Bilva ; Abhijit, flowers ; Śravaṇa, milk ; Śatabhishak, dalls ; Pūrvābhādra, Karila (?) ; Uttarābhādra, pig's flesh ; Revati, fish ; Aśvini, the flesh of Tittiri bird ; Bharāṇi, rice.

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## CHANGE OF SEX IN FICTION.

BY KALIPADA MITRA, ESQ., M.A., B.L.

CHANGE of sex is not an unfamiliar motif in Hindu fiction. It is believed that *Karma* determines sex in this and future birth. In the ancient literature of Buddhism, Jainism and Hinduism, we find good action associated with the male principle, and evil action with the female. As a fruit of her good act in this birth the sex of a virtuous woman gets changed even in this birth or in a future. Similarly a man for having committed a sexual sin in this birth is punished in many subsequent rebirths by castration if he is born as a male, or by being born as a hermaphrodite, or as a female.

In the *Sakkapañha Suttanta* (XXI) of the *Digha Nikāya* (P.T.S., D.N. Vol. II, p. 271) we read: "Idh'eva Bhante Kapilavatthusmiṃ *Gopikā nāma Sākyadhītā* ahosi Buddhe pasannā dhamme pasannā saṃghe pasannā silesu paripurakārinī. Sā itthiccittam virājetvā purisacittam bhāvetvā cāyassa bhedā param maraṇā sugatiṃ saggam lokam uppannā devānam Tāvatiṃsānam saḥavyatam aṃhākam puttattam ajjhupagatā. Tatrāpi nam evaṃ jānanti: *Gopako devaputto Gopako devaputto.*" \*

We find, therefore, that *Gopikā*, the daughter of the *Sākyas*, for her faith in the Buddha, Dharma and the Saṅgha, and for her perfect observance of the *Silas* (precepts) was born as a son (male) and named *Gopaka*, the son of a god (as after her fleshly birth she was born in the *Tāvatiṃsa* heaven of the gods).

She says, reviewing her previous birth—

*Itthi hutvā svajja pumo' mhi devo  
dibbehi kāmehi samangī bhūto.* (p. 273.)

In *saṃsāra* (rebirths) does a woman become a woman in all subsequent rebirths, and a man a man? "No," says the Buddha, "no such thing exists." In the *Ubbariṭetavattthu-kathā* (P. V. A. II, 13) he says: "*ayaṃ niyamo saṃsāre n'atthi yaṃ itthi itthi yeva hoti puriso puriso evā ti dassento*

*Ahu itthi ahu puriso pasuyoniṃ pi agamā  
evaṃ etaṃ atitānam pariyaṇto na dissatiti*"

The commentator explains: *Tvaṃ kadāci itthipi ahosi kadā ci puriso pi ahosi*.....(Sometimes you were a woman, sometimes a man.....)

In the story of *Isidāsī* in the *Therigāthā* she recounts the incidents of her seven previous births:—

\* Italics are mine.

Nagaramhi Erakakacche suvaṇṇakāro ahaṃ bahutadhaṇḍaṃ  
 yobbanamadena matto so *paradāraṃ āsevihaṃ* ॥  
 so'haṃ tato cavitvā nirayaṃhi apacissaṃ ciraṃ ॥  
 pakko tato ca utthahitvā makkaṭṭiyā kucchim akkomuṃ ॥  
 sattāhaṃ jātakammaṃ mahākapi yūthapo *nillacchesi*  
 kāṇāya ca khañjāya ca elakiyā kucchim akkomuṃ  
 dvādasavassāni ahaṃ *nillacchito* dārake paribahitva

\* \* \*

so'haṃ tato cavitvā govānījakassa gavīyā jāto  
 vaccho lākhātambho *nillacchito* dvādase māse

\* \* \*

so'haṃ tato cavitvā vithiyā dāsīyā ghare jāto  
*n'eva mahilā na puriso* yathāpi gatvāna *paradāraṃ*  
*tiṃsativassaṃhi* mato *sākaṭīkakulaṃhi dārikā jātā*.

\* \* \*

"In my previous birth I had been a rich goldsmith; inebriated with the intoxication of youth I knew another's wife (committed adultery). For this sin long did I dwell in hell; then was I reborn as a monkey, on the seventh day the leader of the herd, the great monkey, castrated me (*commy. purusalacchanabhūtāni vjāni nicchasi*, took out the seeds, the signs of a male). In the next birth I was born as a goat; castrated did I carry the boys on my back for twelve years. Then was I born as a bull, they castrated me in the twelfth month. Then was I born in the house of a female street servant, neither a male nor a female (hermaphrodite). In the next birth I was the daughter of a poor carter.....Thus did I reap the fruits of adultery committed in a previous birth."

Very much like the above story reads the account of the seven former births of Princess Rūjā in the *Mahānārada-kassappa Jātaka* (No. 544: *Cambridge Translation*, Vol. VI, p. 120). Born as the son of a smith in the city of Rājagaha he went about corrupting other men's wives, for which sin, after suffering the tortures of Rorua hell for a long time, he became a castrated goat in Bheṇṇakaṭa; in the next birth he was born as a monkey, but his testicles were bit off by the leader of the herd; in other births he was a castrated ox; born among the Vajjī people he was neither man nor woman; then was he born as a *nymph* in the Nandana wood. Says she: "Till the sixth birth is past I *shall not be free from my female sex*. But there is my seventh birth, O king,—a prosperous son of the gods, I shall be born at last as *a male deity* in a divine body (as the fruit of the good which I did in Kosāmbi)."

In the *Dhammāpāda Commentary*\* (III, 9) in the story "Mother of Two and Father of Two," Elder Soreyya was, in his lay life, a treasurer. He looked on Mahā Kaccāyana whose hue of the body was golden and desired that the latter might be his wife. For this sinful thought he was himself transformed into a woman, and in course of time bore sons. His affection for sons when a mother was stronger than that when a father.

In a much later book, the *Telakaṭṭha gāthā* of the twelfth century A.D. (edited by E. R. Goonaratne. J.P.T.S., 1884) the idea also occurs :

\* \* \* \* \*

Itthī na muñcati sadā puna itthi bhāvaṃ |  
*Nāri sadā bhavati so puriso parattha* ||  
 yo ācareyya paradāraṃ alaṅghanīyaṃ |  
 Ghorañca vindati sadā vyasanañc' anekaṃ ||

The same idea also occurs in the *Pañcagati dīpanaṃ*

(p. 159; J.P.T.S., 1884), Slokas 93, 94 :

Paradāresu saṃsaṭṭhaṃ yo na vāreti mānasaṃ |  
 Sārajjeti c-anaṅgesu *nārittaṃ jāti so pumā* ||  
 yā jigucchati narattaṃ susilā mandarāginī |  
 niccaṃ pattheti pumbhāvaṃ *sā nāri narattaṃ vaje* ||

In the *Ananusociya-Jātaka* (No. 328)†, however, we read : " Now at this time a certain holy man passing from the Brahma world was born again in the form of a young girl in a town in the kingdom of Kāsi, in the house of a Brahmin worth eighty crores, and the name given her was Saimmillabhāsini... And since no thought of evil was ever suggested to her by the power of sinful passion, she was perfectly pure." Here the idea of punishment inherent in the change of sex is absent; a suitable wife absolutely devoid of sexual passion was required to match the Bodhisatta who had no desire for married life at all.

In the story of Rūpavatī in the *Divyāvadāna* (ed. by Cowell and Neil) pp. 473-474, we find that the sex of Rūpavatī is changed and she forthwith becomes a male in fulfilment of her *Satyavacana* or Act of Truth.

Tena hi brāhmaṇa satyavacanāṃ kariṣyāmi | yena satyena brāhmaṇa satyavacaneno bhau stanau parityajāmīti parityajantyāḥ parityajya vā nā bhūc cittasyānyathātvaṃ nābhuccittasya vipratissāro' pi ca brāhmaṇa yena satyena mayā dāraṃsyārthā yobhau stanau parityaktaṃ na rājayārthaṃ na bhogārthaṃ na svargārthaṃ na śakrārthaṃ na rājñāṃ cakravartināṃ viṣayārthaṃ..... tena satyena satya vacanena mama strindriyaṃ antardhāya puruṣendriyaṃ

\* Harvard Oriental Series. Vol. 29. Burlingame's *Buddhist Legends*.

† *Camb. Trsln.*, Vol. III, p. 63.

prādurbhavet tasyā stasmin neva kṣaṇe strīndriyam antarhitam puruṣe-  
ndriyam prādur bhūtam.

She cut out her breasts for the sake of saving the life of a just born infant by feeding with them the famished mother who would otherwise have devoured the child.

The story of Rūpavatī occurs as Rukṣavatyavadāna in Kṣemendra's *Bodhisatvāvadāna-kalpalatā* (*Bangiya Sahitya Pariṣhat*, B.S. 1320, Vol. III; p. 475 ff.) with the same sex change motif (Slokas 13-15).

Another case of change of sex is related of Śikhandī, son of king Rudrayāna, who was in previous birth a girl, in the *Dīvyāvadāna*, p. 585.

Kim manyadhve bhikṣave yāsau dārikā yayā pratyeka buddhasyopari saṃkārah choritah esa evāsau śikhandī.

This reappears in Sl. 198, on p. 406 of the *Bodhisatvāvadāna-kalpalatā*. Again in the *Viśākhāvadāna* of the latter book, in the identification of the birth portion the master says: "I was then Prince Viśākha, and Devadatta was my wicked wife Kalāṅkavatī."

In a Jain book, named the *Kathākośa* \* we read: "As for those two deceitful merchants, Dhanapati and Dhaneśvara, when they died, their allotted period of life having come to an end, they were born as women on account of their deceitful nature, one in Śaṅkapura and the other in Jayanti."

Again "in the story of the Couple of Parrots" (p. 42 *et. seq.*) the hen-parrot wishing to avert the marriage of her Vidyadhara brother who has carried off his own mother to marry her, assumes two forms—*viz.*, of a male and a female ape. The female ape said to the male: "Think intently of their form (*i.e.*, of human beings sitting under the tree) and leap into this well that you may become a woman and I *will become a man.*"

We thus meet with the popular belief in the change of sex in rebirth or transmigration as preserved in Buddhist and Jain tradition.

In chapter XII of the Anuśāsanaparva of the *Mahābhārata* we read that in ancient times King Bhaṅgāsavana desiring male offspring performed the *Agni śṭuta* yajña, in which Agni being pleased gave him a hundred sons. Indra was angry with the king for having performed this sacrifice in which he had a position subordinate to that of Agni. Mindful of wreaking vengeance on him Indra led the king, when he was out on hunt in the forest, to a beautiful lake described with all its poetic convention. As the thirsty king plunged into the water, lo and behold! he was changed into a female. After committing the administration of his kingdom to his sons he retired to the forest, and now, a female as he became, consorted with a *tāpas* (hermit) and had by him a hundred sons in the course of time. He brought

\* By C. H. Tawney (Oriental Translation Fund, 1895), p. 71.

these sons to the capital to his former sons born of him when he was a male and all lived together as brothers in amity and concord. The enraged Indra caused dissensions amongst the brothers, and they—the two hundred sons of Bhaṅgāsvana—all died in fratricidal conflict. The king was sore smitten with grief at the loss of his two hundred sons, and when Indra was mollified he gave the king the choice of the revival of a hundred sons of either state, male or female. The king preferred to have his sons of his motherhood resuscitated to him, as he declared the mother's affection was more intense than the father's. We have already seen this confession in the story of "Mother of Two and Father of Two" above mentioned.

It is related in the *Padmapurāṇa* that Sudumnya *alias* Ilā, son of Manu, while hunting in the forest strayed unwittingly into the Kumāravana which was cursed by Śankara, and to his amazement, was turned into a female. Satisfied with his prayers Śankara gave him the boon: "You will be a male and a female in alternate months." As a female he consorted with Budha and became the mother of Purūrava, and as a male he became the father of Utkala, Gaya and Vimala. In another version Ilā was the daughter of Vaivasvata Manu, wife of Budha and mother of Purūrava. Manu supplicated Mitrāvaruṇa for a son but owing to some defect in the ritual, a daughter was born to him instead of a son, and that daughter was Ilā. Subsequently Ilā pleased Viṣṇu with her devotion and was, as a reward, changed into a male and became known as Sudumnya.

This idea has not died out altogether. Dr. Crooke observes: "Dhanwārs in the Central Provinces always ascertain from a wise man whether the soul of any dead relation has been born again in the child, and as it is thought *that there may be a change of sex in transmigration*, male children are sometimes named after women relations and female after men."\*

Closely associated with the idea of change of sex in transmigration is the idea of sex-disguise as a prophylactic or protective measure against the evil principle, say the evil eye, or evil spirits or demons. The popular belief is that girls are less susceptible to the attacks of the evil eye or demons than boys. In an article entitled "Prophylactic Disguise for averting Evil" read at the Third Session of the All-India Oriental Conference (1924) Dr. J. J. Modi referred to the Presidential Address to the Folklore Society of London in 1924 by Mr. Balfour who mentions prophylactic disguises resorted to by people in averting the evil eye. They are, for example, (1) Nominal Disguise, one kind of which is giving names of girls to boys, and (2) Depreciatory Disguise, one kind of which is the

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\* W. Crooke—*Religion and Folklore of Northern India* (O.U.P., 1926), p. 151. Quotes Russell's *Tribes and Castes*, ii, 500. Italics are mine.

sex disguise consisting in (a) proclaiming the birth of a boy as that of a girl, (b) perforating the nose or the ear of a boy like a girl, and (c) making the boy grow long hair to simulate the appearance of a girl. Dr. Crooke says : "Occasionally among Hindus the ears of boys are pierced with the object of producing a blot or imperfection, to assimilate them to girls who are less liable to the attacks of the evil eye or demons."\* And again: "children and women need special protection though, as a rule, the latter are less liable to danger than males... ..Pretended change of sex, dressing a boy as a girl is a favourite prophylactic. Actual change of sex is not uncommon in the belief of the lower culture and in the folktales. A tale is told of two Rajputs who planned a marriage alliance, but neither of them had a son and one of them passed off his daughter as a boy. Complications naturally followed, but the father of the pretended boy one day saw his bitch jump into one of Devi's pools and her sex was changed.....A like tale is told of another Rajput girl who was sacred and sent to the seraglio of the Emperor of Delhi. She escaped and took refuge in a Devi temple where she was changed into a boy..... Many cases of change of sex by bathing in Mansarowar lake are reported. Among the Eastern Lushais there is the custom of women dressing as men—one of them in one case marrying a girl, while men adopt the dress and customs of women.....change of sex is often simulated in marriage rites, when it is not uncommon to dress the bridegroom as a girl or *vice versa*."†

The idea of giving a boy the name of a girl to avoid the evil eye and prolong his life is as old as the *Divyāvadāna*, probably older. When a mother's sons did not live and none knew how to avert this calamity, some *sādhupuruṣa* came and advised her to give the son a female name (See *Divyāvadāna*, pp. 587, 588) :

Evam anekaparakāra kāyacetasor āyāsakāribhir api vrato pavāsa-maṅgalair yadā naiva kadācit kālē'sya putrā jīvinō babhūvuḥ tadainam ativipule pragāḍhaśokāpagāmbhasi nimajjantaṁ kaścit sādhupuruṣo' bravīt :

Vidhim apāram ahaṁ te bodhayāmi prasiddhyai tvaṁ api ca kuru tāvat saṁprasiddhyai kadācit yadi bhavati sutaste kanyakanama tasya sakala janapade' smin khāpayasva prasiddhya 11

And this was done :

tanayaṁ uditaceta Maitrakanyābhidhānaṁ dasa divasaparena khāpayā-māsa loke.

The belief that sex can be changed by means of spells occurs in fiction. In the "Fulfilled Prophecy" (No. XVII) in Schiefner and Ralston's *Tibetan*

\* *Ibid.*, p. 225. Quotes *Ind. Ant.*, X. 332, i, *E.R.E.* vii. 324.

† *Ibid.*, p. 279.



*Tales* (Broadway Translations, 1926), p. 278, we read: "The Rishi was in possession of spells and magic formulas and knew one spell by which a man might be turned into a woman, and back again into a man."

The motif migrated westwards along with the migration of tales from India. In the Note to Chapter XXI, p. 149, Vol. III of *Arabian Nights' Entertainments* by W. Lane and Stanley Poole in the *Story of the King and his Son and the Damsel and the Seven Viziers* we read:

"And when they were proceeding over the desert the vizier remembered that there was near unto them a spring of water called Ez-Zahr'a (*viz.*, the bright, splendid, etc.) and whosoever drank of it, if he were a man, he became a woman." The king's son drank of it and became a woman. He was again restored to his original sex (p. 151) by drinking of another spring to which he was conducted by a horseman....."It is called the Spring of the Women, no woman drinketh of it, but she becometh a man."

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# THE TORTOISE IN INDIAN LIFE AND RELIGION. \*

BY S. T. MOSES, ESQ., M.A., F.Z.S., F.R.A.I.

## Legendary.

It is indeed curious that in the cosmogony of various nations the tortoise should find a place. As in the pythagorean cosmogony, the Hindus believe the earth is supported by an elephant, the 'Maha-pudma', which in turn stands on the back of a tortoise the 'Chukwa'. To the Hindus Koorma is also the Creator of the universe. The earth was lifted out of the waters by the tortoise and in order that it should not roll up under the scorching rays of the sun, eight enormous elephants were placed at the eight corners to keep it ever flat. Among the American Indians also a similar mention of the tortoise is made in their legends of the origin of the earth.

The *Satapatha Brahmana* says: "The creator is called 'Kūrma' a tortoise, because having assumed this form Prajapati brought forth all creatures. What he brought forth he made and because he made he is called Kūrma. The Kūrma is also called Kasyapah, hence all the creatures are Kāsyapah, the children of Kasyapa. He who is Kūrma is Aditya, the sun." The *Taittiriya Aranyaka* gives the story of creation as follows:—"The waters were 'salilam' (chaotic). Prajapati alone came into being on a lotus leaf. Seized with a desire to create the universe, he performed tapas. His 'rasa' juice became a tortoise moving in the middle of the water. When questioned if the creature did not come from his skin and flesh the tortoise replied he had been there even from before." *Taittiriya Aranyaka* also gives us the legend of Rudra drinking poison and the mention there of the Vatha prasnas (the windropes) and Oordhva manthin (the upright churn) links this with the Puranic legend of the churning of the sea for nectar where Vishnu assumes the tortoise incarnation. The legend of Rudra and poison is found in the *Rig Veda*. The Koormavatar legend is found in the *Ramayana*, *Mahabharata*, *Vishnu Purana* and *Bhagavat Purana*. The churning of the ocean by the Devas and Asuras with the mountain Mandara as the churn stick and the snake Vasuki as the rope, the sinking down of the mountain into the depths and the incarnation of Vishnu as a turtle to keep it up in position during the churning are the salient features of the story. The *Ramayana*, however, makes no mention of the tortoise. *Mahabharata* and *Bhagavata Purana* say that the poison was drunk by Siva while the *Vishnu Purana* says the snakes took the poison.

\* A paper read at the Indian Science Congress, held in January, 1927, before the Anthropological Section.

An occultist who realizes the existence of an esoteric side to these Puranic stories finds the Dasavatars are only the landmarks in the onward march of evolution, both physical and spiritual. The divine turtle, the stage next in evolution to a fish, shows the progress from the aquatic life of Bhakti to the amphibious one of Bhakti and Gnana.

### Deities.

Sri Kūrmam or 'Holy tortoise' in Ganjam District is named after the principal deity there, Sri Kūrma Swami, the tortoise incarnation of Vishnu. During the churning many animals were killed and Siva purified the worshippers from that sin. In this temple Siva is represented as having Durga and Bairavi on either side. The temple is said to have been built by Viswakarma, the celestial architect, and Siva's linga is known as Sri Kūrmesvara after Vishnu's incarnation. At Nerenika in Bellary where the hill with the temple dedicated to Mallesvara contains many caves, there is a large shapeless rock which is declared by some to represent a tortoise and by some a fish. This so-called tortoise image receives worship from devotees.

### Religious Ceremonies.

In the *Taittiriya Samhita* is mentioned a ritual of burying a living tortoise underneath the altar and says the tortoise thus buried will lead the sacrificer to Swarga (heaven). Brahmins, especially the Nambuthris, use 'Koormasana' (small and low wooden planks in the form of tortoise) for devotional purposes. These 'ama palaga's are also used when taking meals, etc. During marriage ceremonies these 'arumana palaga's made of chammata and of the usual tortoise shape—the tortoise in the west is an emblem of chastity—are used for seating the bridegroom and the bride among Nambuthris.

### Tortoises as Sacred Pets.

Observers often while complimenting India on her charity regret that much of it is misdirected; in a list given of the men and animals who get their due (or rather undue) share of such charity the tortoise finds a place. In the Surat and Ahmedabad "hospitals" maintained, from time immemorial, for animals, tortoises have lived for many years though no records exist to show when they began their invalid lives. Feeding the sacred tortoises living in pools and other water courses attached to temples is a certain way of acquiring merit. At Agra devotees or even others feed with balls of flour, baked gram, etc, the innumerable tortoises living in the Jumna which fully seem to appreciate the attention given. Some even leave the water and enter the sands for receiving the doles. In ponds attached to Pagodas in Burma mud turtles are found and these are accustomed to feed on curry and rice thrown in by pilgrims and others who flock to the Pagodas. Sweetened rice is

given as offerings to the mud turtles found living in the tank attached to the famous temple at Puri. According to tradition current there, these tortoises are the descendants of an unhappy man by name Gopal who had somehow offended Jagannatha Swami. The priests who attend to the wants of these creatures and at whose call the turtles come up to the surface are all named Gopalan.

### **Tortoise as a Tabooed Article of Food.**

Though many castes are patrons of tortoise consumption, the fishermen of the East Coast do not even bring it ashore, should one get entangled in their nets. They usually worship the unfortunate creature with apposed hands and liberate it into the sea. But sometimes money and toddy will make them forget for the time being the turtle's connection with Vishnu and to supply specimens either to the Aquarium or to the Government House for an aldermanic banquet. In Maldives and Laccadives the inhabitants who are Mohamedans do not eat the turtles, because of a service rendered by a turtle to the mythological 'creator' of these islands. The islands are said to have been hauled up from the bottom of the sea by means of fish hooks by Komburani and according to their legends it was a turtle which suckled (!) Komburani and brought him up.

Last year two students of the Fisheries Training Institute, Calicut, who belong to the Mukkuva community of fishermen, intercepted a turtle which had come to lay eggs on the usually deserted beach at West Hill, turned it on its back and had it tied down by ropes. While lying in that posture, in the Hostel the creature went on flapping its fins like mourners beating their breasts and looked at people with a plaintive expression in its eyes. The flesh was eaten by all the students of the Hostel belonging mostly to the sea-faring communities—the eaters have no share in the sin—and the shell was taken to the Museum but still the two boys were very sorry and were sure some misfortune—say a failure in the final examination—would befall them. However, they did not fail in their examination but the fear has not yet vanished.

### **Tortoises and Houses.**

Among Nayers for housebuilding a site which is shaped like the back of a turtle is always avoided. According to the 'Silpa Sastram' or 'Maniadi Sastram' which is consulted by most castes in South India, if when the owner and the architect or engineer go to the land on which a house is being built, they see a tortoise, sure and certain it will be destroyed by fire. In the Tamil districts the tortoise is considered an inauspicious creature and should never be seen inside a house. The saying is 'Destruction awaits the house entered by a tortoise or by a Court Amin.'

### Totems.

Dr. S. C. Roy speaking on totem worship among Oraons showed Kachappa (tortoise) must have given rise to the gotra now known as Kasyapa and the existence of a wooden figure of the tortoise supported his theory. In South India among Adi Dravidas (Pariahs) Katchan is a common name. It means tortoise catcher or tortoise eater and is seen in the name of the deity Kacha-leesvaran. The Patanavars, the great fishing community of the East Coast have the tortoise flag as also the weavers, the Shedan.

### Tortoise in Stories and Proverbs.

Tortoise is a type of plodding perseverance—its name Koormam means slow in motion or one who possesses little speed—as is seen from the Aesop's fable where it being slow but steady and sure won the race against the over-confident hare who went to have a nap on the way. In the *Panchatantra*, the Indian collection of animal stories, two ducks help to transport a tortoise by making it cling to a stick with its bill while they carried it by holding the ends with theirs. Seeing this curious spectacle people, in places over which the tortoise was carried in this fashion, assembled and stood gazing at it. The stupid tortoise failing to realize the necessity of clinging on to the stick for dear life, opened its mouth to ask the ducks what the meaning of the action of the men was. It did so and fell on the earth where its body was shattered to pieces. The turtle's back is so shaped that when overturned the poor creature finds itself unable to regain its normal position and it is by turning them on their backs that men capture them. This tactic is referred to in a Tamil proverb which says: 'He entered into argument with him and with his own words upset him as one would turn a turtle on its back!' The Tamil word *Amal* for tortoise is said to be derived from Am, meaning water. The species of *Nicoria* (*N. trijuga*) found in South Indian ponds has the habit of defecating when alarmed or handled and thus fouls the water in which it lives. The Tamil proverb is 'The dumb man spoils the village; and the tortoise the well'. The tortoise which can withdraw its head, limbs and tails within its double buckler formed by the carapace and the plastron is referred to often in Tamil literature as a good example of self-control. "If one could keep his five senses under control like a tortoise, such discipline will safeguard him throughout his sevenfold births." The eggs of tortoises are soft shelled and so are proverbial for being soft. Jackals are very fond of tortoises and one experiencing a windfall is compared in Malayalam to a jackal getting a tortoise. Another interpretation of this proverb is that it refers to a useless thing. Those of this school are apparently unaware of the obnoxious tactic the father of stratagems has recourse to, to draw the head of the tortoise out.

# STUDIES IN BIRD-MYTHS, No. XVI.—ON TWO ÆTIOLOGICAL MYTHS ABOUT THE PADDY-BIRD'S LONG NECK AND LEGS.

BY SARAT CHANDRA MITRA, ESQ., M.A., B.L.

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THE Pond Heron (*Ardeola grayi*.—Sykes) is a very well-known bird of the Indian countryside. It is found most abundantly everywhere in India. It is known to the Europeans in India as the Paddy-bird. In Hindi, it is known as the "*Andhā Baglā*" or the "*Kāni Baglā*" or "the Blind Heron". Mr. W. T. Blanford says: "The native names (of the Paddy-bird) in several languages mean "*Blind Heron*". Its Anglo-Indian name "Paddy-bird" is, most likely, derived from the fact that it is "*often found about paddy-fields, ditches, village tanks, and similar places, not easily seen when sitting, making a startling display of its white wings, body, and tail when it flies up, often close by the intruder, with a guttural croak.*"

The most remarkable physical characteristics of the Paddy-bird are its long curved neck and long stilt-like legs. These bodily peculiarities attracted the notice of primitive men like the Santals and the Mundas. The most thoughtful and enquiring men among them set about to find out the reasons as to why this bird's neck and legs are, unlike those of most other birds, long. Being unable to find out the true biological causes of their length, the Santali enquirer invented the following myth to account for these bodily peculiarities of the Paddy-bird:—

When Princess Chandāinī was flying away from her husband Sahdeo Goālā, she was pursued by a young man named Biso Munda as the latter was very desirous of making her his mistress. On the way, she met various trees and beasts and requested them to do their level best to delay Biso Munda. This they agreed to do. Then she went on and on and, seeing a Paddy-bird feeding by the roadside, asked it to do its very best to delay Biso Munda. On this, the bird drove its bill into the earth and said that it would treat Biso Munda in that very way.

Then Biso Munda, who was in hot pursuit of Princess Chandāinī, met the aforementioned tree and beasts, he cut all of them down. Then he came across the Paddy-bird who pretended to be busily engaged in feeding, and gradually approached nearer and nearer to him. He allowed the bird to come very close to him, and, when it had done so, suddenly caught hold of it and gave its neck such a strong pull that it lengthened the neck out considerably.

After Biso Munda had placed the Paddy-bird upon its feeding-ground, the latter cried out: "I thank you very much for this act. Now I shall be able to catch all the fish in the pond without budging myself."

On hearing these words, Biso Munda again caught hold of the bird and gave its neck another strong jerk which made it still more elongated and somewhat curved down. *This is the reason why the Paddy-birds have necks shaped like the letter S.\**

On the other hand, the Munda enquirer manufactured the under-mentioned myth to explain the reason as to why the Paddy-bird possesses long neck and legs:—

Once upon a time, there was a man named Sītā and his wife was named Sītālī. One day, in a fit of huff, Sītālī left home and went somewhere else. Her husband went in search of her. In the course of his search for his missing wife, he arrived at a town of which the shape was curved like that of a scythe, and straight as the spindle of a spinning-wheel.

In a paddy field near this town, a Paddy-bird was foraging for food. Sītā enquired of this bird: "Has my wife Sītālī gone this way? Have you seen her?" The Paddy-bird replied: "I do not know Sītālī (lit. *Sītā mitā*), I know only the pangs of my hunger (lit., the fire of my bowels)."

*At this reply, Sītā got enraged, and catching hold of the Paddy-bird, and placing his feet on the bird's legs, he stretched out its neck and head. Since then, the Paddy-bird's legs have become long and stick-like, and its neck has become long and slim, like that of a snake.†*

On analysing the aforementioned Santal and Munda ætiological myths, we find that, in the first story, the Paddy-bird, at the request of the heroine, undertakes to impede the journey onwards of her pursuer. The latter, having come to know of this, seized the bird and gave its neck a strong jerk, whereupon the bird's neck became long and shaped like the letter S. But, in the second myth, the Paddy-bird expressed its inability to furnish the hero with some information about the heroine's whereabouts. This enraged the hero who, placing his feet upon the bird's legs, stretched out the bird's neck which thereupon became long and slim like that of a snake, and its legs became stilt-like. So, in both the cases, the punishment of the Paddy-bird by a person who got enraged with it, is the root cause of its peculiar bodily features, namely, its long and slim neck and stilt-like legs.

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\*Vide the folktale entitled: "*Sahdeo Goālā*" in *Folklore of the Santal Parganas*, by C. H. Bompas. London: David Nutt. 1909, Pages 116—123.

†Vide, *The Journal of the Department of Letters of the Calcutta University*, Vol. IV (1921). Page 303.

We have already seen that the Robin Redbreast owes its crimson breast, and the cross-bill its croaked bill to their efforts to alleviate the pain of the crucified Jesus Christ.

We should now try to find out if there is any other myth in the folklore of any other race or tribe which ascribes the origin of other birds' bodily peculiarities to the wrath or curse of some other person of historical celebrity. We have been successful in finding out such a myth in the folklore of the Malay Peninsula. It ascribes the bodily peculiarities of certain birds to a curse which King Solomon pronounced upon them in a fit of anger. It is as follows:—

King Solomon commanded all the birds, who were his subjects, to go out to forage for food and to return in company to their respective abodes at nightfall. When, one evening, he summoned all the birds to his presence, he found out that the eagle, who was one of his bodyguards, was absent. Then King Solomon enquired from the birds who were present as to the nature of the errand for which the eagle had gone. The majority of the birds replied that the latter had not gone on an errand but had not willingly accompanied them.

Thereupon King Solomon said that if that was the truth, the eagle should be treated as a rebel and that they should cut him down immediately.

On hearing these words of the king, the Blue Heron replied: "Assuredly, the eagle went on some errand or other, I crave one day's respite."

Then the Woodpecker made a similar reply, saying: "If he had done any wrong, I should be the first person to know of it. Am I not one of your Majesty's bodyguards and could I not settle it if he had done any wrong? I crave two days' respite."

Thereafter the Thrush said: "I crave three days' respite."

So, King Solomon granted three days' respite.

When the period of respite had expired, the eagle returned and, after holding a consultation with his comrades, induced the Woodpecker to go to King Solomon.

Thereupon the Woodpecker went to the presence of King Solomon and, after making his obeisance to him, said: "The eagle, your Majesty, did not return the other day, because he found, in the cavern of the rocks, a follower of Her Highness the daughter of the King of the Genii, who is a person of surpassing beauty and is worthy to become a consort of your Majesty."

To this the king replied: "Very well, if you are strong enough to do so, take her from him. You have our permission."



But, in the meantime, the eagle had, with the Woodpecker's assistance, made a hollow in a tree and, after confining the Princess therein, and closing up the hollow with pitch, had mounted guard there.

When the king heard this, he said : " Bring them both here, and I will grant his life."

Then the eagle brought the Princess before King Solomon ; and the King commanded the Queen to make a lather of powdered rice and wash it off the Princess' body again with limes. When this had been done, the Princess' feathers dropped off ; and the white markings on her skin showed up in all their beauty.

Thereafter, the daughter of the King of the Genii was married to King Solomon.

After his marriage, King Solomon said to the assembled birds : " If ye had had nothing to say, ye should have spoken like the Thrush. If ye had aught to say, ye should have spoken like the Blue Heron."

*And he cursed all the birds with a great curse, and that is why at the present day, there are birds of so many different sorts, some with too long a beak, others with too long a tail and yet others with black marks round the neck.\**

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\* *Vide* the folktale entitled : " *King Solomon and the Birds* " in *Fables and Folktales from an Eastern Forest*. By Walter Skeat, Cambridge : University Press, 1901.

# STUDIES IN BIRD-MYTHS, No. XVII.—ON AN ÆTIOLOGICAL MYTH ABOUT THE CARRION-FEEDING HABIT OF THE INDIAN WHITE-BACKED VULTURE AND THE SMALLER WHITE SCAVENGER VULTURE.

BY PROFESSOR SARAT CHANDRA MITRA, M.A., B.L.

THE Indian White-backed Vulture (*Pseudogyps bengalensis*.—Sharpe) is the commonest vulture throughout India and Burma. This vulture and the Indian Long-billed Vulture (*Gyps indicus*) are commonly found about towns and villages where they assemble in great numbers and feed upon carcases of all kinds.

The smaller White Scavenger Vulture (*Neophron ginginianus*.—Blyth) is found throughout the greater part of India. But it is not common in Central and Northern India. *It is somewhat common in Bihar extending as far East as Deoghar and Madhupur in the Santal Parganas.* It is occasionally found in Lower Bengal. This species of vulture also frequents towns and villages and feeds upon human excrement. It also eats carrion. But it does not commonly feed upon dead animals.

I am inclined to think that the vulture referred to in the undermentioned ætiological myth is not the King-Vulture, but the Indian White-backed Vulture (*Pseudogyps bengalensis*) and the smaller White Scavenger Vulture (*Neophron ginginianus*) which latter is common in the Santal Parganas.

The carnivorous or carrion-feeding habit of the aforementioned vultures attracted the notice of primitive men like the Santals who are in a low plane of culture. The thoughtful and enquiring men among these people—the Santals—were unable to make out the reasons why some birds fed upon fruits, seeds and insects and why, unlike them, these vultures fed upon flesh and carrion of all kinds. Therefore, they invented the undermentioned myth to explain how the aforementioned vultures imbibed the habit of eating flesh and carrion of all kinds :—

Once upon a time, a pregnant Santal woman went, in the company of other women of her village, to gather *Karlā* fruits in the forest. While she was gathering these fruits, she was taken ill with the pangs of child-birth and, shortly afterwards, gave birth to twins. Not finding her and thinking that she must have been devoured by wild beasts, her companions returned home. In the meantime, the recently-delivered mother, preferring the basket of *Karlā* fruits to her new-born twins, covered the latter with the leaves of the *Āsan*-tree and left them to their fate in the forest, and brought the

fruits home. On her return home, her parents-in-law and husband came to know of what had happened in the forest and scolded her roundly for her inhuman act in having abandoned her newly-born twin babies. But, for fear of the wild beasts, her husband did not go to the forest in search of the abandoned babies.

No sooner had the mother left the newly-born twins, than a pair of king-vultures swooped down to make a meal of them. But, hearing their piteous cries, they felt compassion for them and took them up to their nest where they brought them up like their own young ones. When the two boys grew up and were able to walk about, their foster-parents—the two king-vultures—placed them upon the ground and allowed them to go a-begging in the neighbouring villages, telling them not to go towards the village where their real parents lived. The two boys went about begging to the accompaniment of the singing of the undermentioned song:—

“ Our mother took away the *Karlā* fruit  
 She covered us up with *Āsan* leaves,  
 The pair of king-vultures  
 Reared us—  
 Give us alms.”

One day, however, the twins, feeling curious to see what the surrounding country was like, went to the village where their mother lived. Hearing their song and seeing their appearance, the woman immediately recognized that they were her twin boys whom she had abandoned in the forest. So she called them in, anointed them with oil, bathed them and fed them. Having come across their real mother, the two boys felt very happy and stayed with her.

When the boys did not return to the nest, the two vultures flew out in search of them, and circled round and round over the hut of their real mother. Seeing the two vultures, the mother at once knew what they wanted. So she immediately took the two children inside the hut and covered them up with a large basket.

But the two vultures made a hole through the thatch of the hut, and, entering through it, overturned the basket and seized the two boys. The parents, in their turn, also caught hold of the children. Thus the vultures on one side, and the parents on the other, pulled at the children very hard, until they were torn into two pieces. The birds flew away to their nest with the portion of the flesh they had secured. While the sorrowful parents burnt their portion of the bodies on a funeral pyre.

Not desiring to eat the flesh of the boys whom they had brought up, the vultures set fire to the nest with the boys' bodies placed therein. When the flesh was burning, some juice from it spurted on to the bodies of the vultures

who tasted it and found it very delicious. *So they drew out the remainder of the burning flesh from the nest and ate the same. It is for this reason that, from that time, the vultures feed upon the corpses of human beings.\**

In the same way, the thoughtful and the enquiring men among the Santals felt curious about the origin of the habit, possessed by tigers and leopards, of eating the raw flesh of the game they kill. They also wanted to find out the reason why cats bury their excrement in the earth. Being unable to ascertain the true causes from which the tigers' habit of eating raw flesh, and the cats' habit of burying their excrement in the earth, have originated, they invented the undermentioned myth or story to account for the origin thereof:—

Once upon a time, the tigers and the cats were great friends and used to hunt together and eat the flesh of the game they killed, *after cooking it just as human beings do.*

One day, the tigers and the cat killed a deer but could not cook its flesh, as they had no fire to cook it in. So the tigers sent the cat to fetch fire from a neighbouring village. As the cat made great delay in bringing the fire, the tigers got angry with him *and ate the flesh raw.* When the tigers saw the cat returning with the fire, the former scolded the latter severely for the delay he had made, and threatened to eat him too, *dung and all*, as the latter *had made them eat raw flesh.* Hearing this threat, the cat fled into the nearest village and would not come out therefrom. The tigers went in pursuit of him but could not enter the village, for fear of the dogs who, with their tails curled up, came out barking at them. *It is for this reason that, from that day, tigers and leopards eat raw flesh, and cats bury in the earth their excrement because of what the tigers had said.*

One day, however, the tigers met a jackal and told him that they were afraid of entering the village and searching out the miscreant cat, because of the dogs with their curled-up tails, which they mistook for nooses with which the dogs threatened to strangle them. But the cunning jackal told the tigers that what they took for nooses were not really nooses, but the curled-up tails of the village-dogs. So, mustering up courage, the tigers entered the village and searched for the miscreant cat high and low, but could not find him out. When they were coming back, the village-dogs came out barking at them. But, this time, the tigers presented a bold front, attacked them and killed one of them whose carcase they ate. *It is for this reason that, from that time, tigers and leopards eat dogs.†*

\* *Vide* the Santali folktale entitled: "*The Children and the Vultures*" in *Folklore of the Santal Parganas*. By C. H. Bompas. London: David Nutt. 1909, pages 289-292.

† *Vide* the Santali folktale entitled: "*The Tigers and the Cat*" in *Folklore of the Santal Parganas*. By C. H. Bompas, London: David Nutt. 1909, pages 327-328.

In a similar way, the observant men among the Santals noticed the hares' habit of skipping like leaves blown about by the wind, but were unable to make out the reason why these little animals skipped and hopped about. They, therefore, invented the undermentioned myth to account for the origin of their aforementioned peculiar habit :—

In bygone days, the hares ate men. So a man went to Thākūr, the supreme deity of the Santals, and complained to him about the hares' habit of eating men. So Thākūr sent for the chief of the hares and questioned him about the truth or otherwise of the man's complaint. But the hare denied its truth and, on the contrary, asserted that it was the men who ate the hares. Thereupon Thākūr questioned the man about the truth of this charge. But the man denied its truth.

Therefore Thākūr ordered the hare to go and watch a *Kitā* tree for one year and, should a leaf fall from the tree within that period, to bring it to him. Similarly, he ordered the man to go and watch a *Karkot* tree for one year and, if a leaf should fall from this tree within that period, to bring it to him.

Accordingly both the man and the hare went to perform their respective jobs; and watched the trees for one year. On the last day of the year, a leaf fell from the *Karkot* tree. So the man picked it up and took it to Thākūr. But, as no leaf fell from the *Kitā* tree within the prescribed period, the hare bit off a leaf with its teeth and took it to Thākūr. Thereupon Thākūr examined both the leaves and readily found out that the leaf brought by the man had fallen from the tree of itself, whereas that brought by the hare had been bitten off from the tree.

By way of punishment for the deception that had been practised on him by the hare, Thākūr rubbed the hares' legs with a ball of clean cotton and then pronounced upon these animals the sentence *that they should thenceforward hop and skip about like a leaf blown by the wind. It is for this reason that, at the present day, hares move about by hops and skips.*

By way of reward for the man's honesty, Thākūr conferred on man the boon *that they should thenceforward hunt the hares wherever they would find them and eat them, entrails and all. It is for this reason that the Santals do not clean the hares which they kill but eat them, entrails and all.*

We thus find that, when primitive men like the Santals are unable to account for the origin of peculiar habits possessed by men, beasts and birds, they fabricate fictitious stories or myths to explain the way by which those habits have originated.\*

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\* *Vide* the Santali folktale entitled : " *Hares and Men* " in *Folklore of the Santal Parganas*. By C. H. Bompas, London : David Nutt. 1909, pages 412-413.

## NOTES.

### Orientation.

BY K. RAMAVARMA RAJA, ESQ., B.A.

EASTERN frontage was a very common feature of the great temples of ancient Egypt, Babylonia, Assyria and the East generally. It is regarded as the relic of the sun-worship as these temples were built in such a way as to allow the rays of the rising sun on the summer solstice to reach and illuminate the sacred figure of the god which stood in the sanctuary at the end of the long, narrow and dark passage. This solar idea is offered as the explanation also for the building of churches with its chancel 'pointing to that part of the east in which the sun rises on the day of the Saint to whom the church is dedicated', as well as for the burials of the dead, sitting or lying, with face turned to the east—'a Christian usage which prevailed through mediæval times'—explained in the authoritative works of the period, as the proper position for the dead to rise and to look toward the east. Edward Clodd quotes Dr. Tylor's remarks as follows:—"It is not to late and isolated fancy, but to the carrying on of ancient and widespread solar ideas that we trace the well-known legend that the body of Christ was laid with the head towards the west, thus looking eastward, and the Christian usage of digging the graves east and west which prevailed through mediæval times is not yet forgotten. The rule of laying the head to the west and its meaning that the dead shall rise looking toward the east are perfectly stated in an ecclesiastical treatise of the sixteenth century."\*

But when the dead rises he comes to life again; and further, the temples of the gods and the tombs of the dead are not mutually independent structures, but are related to each other and also to the dwellings of the living; and so also the position of the idols or statues and of the corpses is determined by that of the living. The living model, in short, is copied in the ceremonial arts. Hence the normal or correct posture of man in life seems to be one looking eastwards towards the rising sun and paying him homage in various ways, and in this position he marked out the four cardinal points—east, south, west and north—with reference to his four sides respectively—the front, the right, the back and the left—which he could well distinguish by their characteristic features and uses, from the very outset. That this was his probable starting point is further borne out by the Sanskrit vocabulary which has the same words for the four sides of man and the corresponding four quarters of the earth. Take, first, for instance, the word 'दक्षिण' which means both 'the right side' and 'the south'. Similarly

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\* Edward Clodd's "*Story of Primitive Man*," p. 134, vide also "*The Outline of History*" by H. G. Wells, pp. 104—5.

the synonyms 'पुरः' and 'पूर्वम्' and their derivatives are used to denote 'the front side' as well as 'the east'. The *Gēta* passage "नमः पुरस्तादथपृष्ठतस्ते" (XI—40) is explained thus:—'Salutation to Thee who art in the east as well as in the west.' Here the use of the word 'पृष्ठ' in the sense of 'the west' is noteworthy. Then again, the word 'पश्चात्' and its derivatives are, likewise, used to signify 'the west' as well as 'the back side'. Here may very aptly be quoted the '*Srimad-Bhagavata* passage "परामूर्तेरधर्मस्य नमसश्चापि पश्चिमः" (II—6—9) when 'पश्चिम' which generally means 'the west' is employed to denote 'the back side' (पृष्ठभाग). And last, but not the least remarkable is the use of the word 'उत्तर' which means 'the north' but which is used to denote 'the left side' as well, as in the following passage:—"सोऽप्यस्यवक्त्रे भुजमुत्तरं सम्यन्प्रावेशयामास यथोरगं विले" (*Bhagavata*—P. X—37—5). Here 'उत्तरभुजम्' = left arm or left hand. These pairs of words denoting the side of man and the quarter of the earth to which it is exposed when he stands looking eastward towards the rising sun may be treated as *twin-brothers*, as it were, and he referred to his correct or normal position as depicted above, *i.e.*, facing the golden orb rising in the east; and 'this eastward position,' it may be further remarked, is the one adopted in almost all our domestic ceremonies, whether performed in day time or at night, and therefore may be described as our 'ceremonial posture'.

What has been stated above is perhaps a hasty conjecture or a rash generalization which is not free from exceptions, objections and uncertainties. Among many a barbaric folk, for instance, the dead is buried with face looking westward, which was also the prevailing custom in the Osirian Egypt, the land of the West being considered as the realm of the dead or the home of souls.\* Again, in India itself, among the Hindus, the dying man in the last stage is laid on the floor horizontally north to south with his head at the south end facing the north which is perhaps regarded as his ancient original home or the abode of the gods, or, where the holiest hermitage of Badari is situated to which the sages retire for meditation before death. This is the posture of man in death till he is buried or burned to ashes, and the funeral ceremonies are performed by his nearest relations looking southward—a position in which the dead and the living performer of the ceremony are face to face. Some more notable cases of exception may also be mentioned here. For instance the evening *Sandhya* oblations and prayers are offered in the westward or west-looking position addressing the sinking sun, and for the *pūjas* in the temples the posture of the priest is determined by that of the idol. Besides these variations in customs which operate to unsettle my view of the normal eastward position of man determining the four cardinal points, there is the uncertainty as to whether or not the Vedic texts would support or corroborate it, and in this diffidence I appeal to the scholars for my correction.

\* Edward Clodd's "*Story of Primitive Man*", p. 134 (The Library of Useful Stories) and "*The Realms of the Egyptian Dead*" by A. Wildemann, Ph.D., pp. 42 and 53 (The Ancient East Series).

## CORRESPONDENCE.

### Ceylon and Lanka are Different.

BY D. B. DISKALKAR, ESQ.

IN a back number of this Journal (Vol. XVII, p. 17) Mr. V. H. Vader has quoted authorities to show that Ceylon and the Laṅkā island were not the same. I am glad to produce an epigraphical evidence of about the sixth century A.D. in support of his theory. The seventh verse of the Bodha-Gayā Inscription of Mahānāman (Fleet's *Gupta Inscriptions*, No. 71) runs thus—

आम्रद्वीपाधिवासी पृथुकुलजलधिस्तस्य शिष्यो महीयान्

लङ्काद्वीपप्रसूतः परहितनिरतः सन्महानामनामा ।

तेनोच्चैर्बोधिमण्डे शशिकरधवलः सर्वतो मंडपेन

क्रान्तः प्रासाद एष स्मरबलजयिनः कारितो लोकशास्तुः ॥७॥

In the portion of the inscription preceding this, a great Buddhist preceptor named Mahā-Kāśyapa is praised (v. 2). His disciples roamed at one time over the stainless country at the feet of the mountains of Laṅkā; and in succession from them were born, in hundreds, disciples and disciples' disciples (v. 3). Then there was the Śramaṇa Bhava (v. 4). His disciple was Rāhula; after whom there came the ascetic Upasana I (v. 5). Then came Mahānāman I, and then Upasana II (v. 6). His disciple, as the above quoted verse states,—greater (even than himself), is he who has the excellent name Mahānāman (II), an inhabitant of Āmradvīpa, a very ocean of a mighty family; born in the island of Laṅkā; delighting in the welfare of others, by whom this beautiful mansion of the Teacher of mankind, who overcame the power of Smara—dazzling white as the rays of the moon, with an open pavilion on all sides—has been caused to be made at the exalted Bodhimaṇḍa.

Dr. Fleet, who edited this inscription, takes Laṅkā as one of the most well-known names of Ceylon. And following General Cunningham he takes Āmradvīpa, 'the mango-island,' to be another of the names of Ceylon derived from its resemblance in shape to a mango. To take Āmradvīpa to mean Ceylon is quite right but Laṅkā and Āmradvīpa cannot be taken to be identical, both standing for Ceylon. For Mahānāman in the verse 7 quoted above, who was the disciple of Upasana (तस्य) is said to have been born in the island of Laṅkā (लङ्काद्वीपप्रसूतः). In the first line he is again said to be residing in Āmradvīpa, i.e., Ceylon. Had both the islands been identical the poet would not have made such a distinction between the place of his birth and that of his residence. I am, therefore, of opinion that Ceylon (i.e., Āmradvīpa) and Laṅkā are quite different as Mr. Vader has shown.



## Agastya, the Spiritual Preceptor of the Lata Chaulukyas.

BY D. B. DISKALKAR, ESQ.

IN his very interesting article on 'The Cult of Agastya' Mr. O. C. Gangoly has shown (Above Vol. XVII, p. 172), that "Agastya is reputed to be the spiritual preceptor, *Guru* or *Purohita* of more than one Southern Indian Prince". I may add here one more epigraphical evidence to show that the tradition was kept on even so late as the eleventh century A.D. In an unpublished copper-plate inscription\* of the Chaulukya king Kīrtiraja of Lāṭa (N. Gujarat) found in Surat and dated Śaka 940 (1018 A.D.) obeisance is made to Agastya in the second verse, (the first verse being devoted to the praise of *Bhagavata Śakti*) in the following terms :—

पायाज्जगन्ति स मुनिः कलशप्रसूतो  
यत्पीयमानसलिलेष्वतिसाध्वसेन ।  
अद्यापि लोललहरी निचयापदेशा-  
दश्रान्तकम्पनरतो जलराशिरेषः ॥

This shows that the Chaulukya kings of Lāṭa, who were feudatories of the Chalukyas of the Deccan and had come to Gujarat from the Deccan, acknowledged Agastya as their spiritual preceptor and paid him homage due to a divinity.

## ERRATA.

In the article "A Hindu Traveller in Southern India" by Prof. Jadunath Sarkar which appeared in this Journal, Vol. XVII, No. 4, please read the date of birth of Bhimsen as 1649 and not 1657 as printed.

\* Noticed in *Vienna Oriental Journal*, Vol. VII, p. 88. It will be published in the *Epigraphia Indica*.

## Salivahana Era.

V. S. BAKHLE, ESQ., M.A., LL.B.

IN his note on the Śālivahana Era published in the last issue of this Journal, Mr. S. Srikanta Sastri has tried to prove that the Śaka Era was founded by Hāla, the well-known author of a collection of erotic verses known as the Sattasai. The question about the founder of the Śaka Era has, of late, received the attention of several scholars; and the suggestion made by Mr. Sastri also deserves careful consideration. Pandit Bhagvanlal and Jackson suggested the possibility of the Śaka Era being founded in commemoration of Nahapāna's conquest of Gujerat;<sup>1</sup> and recently in 1913, Dr. Fleet also felt inclined to hold that the honour of founding this era was due to Nahapāna.<sup>2</sup> On the other hand Cunningham<sup>3</sup> and M. Dubreuil<sup>4</sup> regard Caṣṭaṇa as the founder of this era. All these suggestions have been very carefully considered by scholars; but no satisfactory conclusion has yet been arrived at. The discovery by Sir John Marshall of an inscription at Taxila dated in the era of Azes<sup>5</sup> has thrown considerable light on this question; and it becomes essential now, while considering this question, to keep an eye on the events that were then happening in the North-West of India.

On one point Mr. Sastri is evidently wrong. His statement that numismatic evidence goes to show that Gautamīputra Sātakarṇi lived about 120 A.D. is far from correct. Numismatic evidence, indeed, shows nothing of the kind. The Jogheltembhi hoard included some coins of Nahapāna which were certainly restruck by Gautamīputra Sātakarṇi; but Dr. Scott<sup>6</sup> who examined these coins was of opinion that possibly the various members of the family caused their own likenesses to be engraved on them while keeping the inscription on the coins unchanged as he was the founder of the dynasty. The discovery of the Andhau inscription of Rudradāman<sup>7</sup> has now further established beyond even a shadow of doubt the truth of Dr. Scott's contention and placed Gautamīputra in the last quarter of the first century A.D. at the latest. Mr. R. D. Banerji with his usual keenness has considered this question in his article on the Date of Nahapāna.<sup>8</sup> The date assigned to Nahapāna on the strength of the evidence furnished by his inscription, coins and the architectural characteristics of his period, is the last quarter of the first century B.C. Nahapāna was followed by several other Satraps; and the last of his line was defeated by Gautamīputra Sātakarṇi. Nahapāna and

1. *Bombay Gazetteer*, I, pt. 1, 28.

2. *J.R.A.S.*, 1913, 922 ff.

3. Cunningham, *Coins of India*, 104 ff.; also *J.B.B.R.A.S.*, 20, 227 ff.

4. *Ind. Ant.*, 1923, 82 ff.

5. *Arch. Surv. Ind.*, 1912-13.

6. *J.B.B.R.A.S.*, 22, 223 ff.

7. *Prog. Rep. Arch. Surv. Ind.*, *Western Circle*, 1914-15.

8. *J.R.A.S.*, 1917, 273 ff.

his successors were evidently Satraps of the Saka-Pallava kings; and the defeat of the last Satrap by Gautamīputra Sātakarṇi indicates that the power of the Scythians was then weakened, whether on account of internecine wars or some foreign conquest.

Before 85 B.C. the Greeks were ruling over Taxila. In that year, the Scythians under Śaka Maues overran Taxila and put an end to the Greek dynasty ruling there. In about 58 B.C. Maues was succeeded by Azes, the First. The Taxila inscription discovered by Sir John Marshall is dated in the era of Azes. Probably this was the well-known Vikrama Era. "This interpretation," observes Prof. Rapson "may well be correct in spite of the tradition that this Era was founded by Vikramaditya to commemorate the defeat of the Sakas and whatever may have been the origin of this Era, the assignment of the reign of Azes to this period is justified by other considerations."<sup>1</sup> Azes, the First, was followed by Azilises and Azes, the Second; and the rule of the last named came to an end in about 20 A.D. Liaka Kusulaka, Rajūvala and Śodāsa were all Satraps of one or the other of these princes. Śodāsa has been placed in about 10 A.D.; and as the characters of the inscription of Nahapāna are earlier than those of the inscription of Śodāsa, we must place Nahapāna in the last quarter of the first century B.C. The fact further that Kṣaharāta, the family name of Nahapāna, is found in some of the Mathura inscriptions and the striking similarity between the coins of Nahapāna and the Mathura Kṣatrapas who styled themselves as Mahākṣatrapas indicate that Nahapāna was subordinate to the Mahākṣatrapa at Mathura, both subservient to the Śaka-Pallava overlord. Evidently Nahapāna's inscription must be regarded as dated in the era of Azes founded in 58 B.C.; and the last date of Nahapāna, the year 46 in the Junnar inscription of his minister Ayama, must be regarded as 12 B.C. and not 124 A.D. This conclusion evidently knocks the bottom out of Mr. Sastri's case for Hāla. Hitherto the only date in the Sātavāhana chronology which could be ascertained with some definiteness was the year 124 A.D. In that year Gautamīputra, it was believed, defeated Nahapāna. But Nahapāna's date being now taken a century back, it becomes necessary now to rearrange the whole chronology of the Sātavāhanas. Whatever date we might assign to Gautamīputra Sātakarṇi, it is certain that he lived long before 124 A.D. which also places Hāla far earlier than the epoch of the Śaka Era.

In trying to ascertain the date of Gautamīputra's conquest of the Kṣaharāta Kṣatrapas, we must, as said above, take into consideration the events that were then happening in the North-West of India. Azes the First, was followed by Azilises and Azes the Second. In about 20 A.D. the last named was succeeded by Gondopharnes who occupied the throne of the 'King of Kings' till about 60 A.D.<sup>2</sup> After the death of Gondopharnes his empire was disintegrated; and probably while the Kushanas taking advantage of this chaos marched victoriously into the Punjab, far away in the south, Gautamīputra Sātakarṇi also took similar advantage

1. *Cambridge History of India*, 1, 571.

2. Smith, *Early History of India*, 230,

and conquered the Kṣaharātas. The power of the Kṣatrapas was weakened as a result of the wars in the North-West; and when ultimately even their suzerains were swept away, they had probably no other recourse than to submit to the victorious hordes of the Sātavāhana king. If this interpretation is correct, we will have to place the conquest of the Kṣaharātas by Gautamīputra Sātakarṇi in 70 to 80 A.D.; and this date is consistent with the date we have to assign to Rudradāman in the light of the Andhau inscription.

It will thus be seen that the dates assigned by Mr. Sastri to the Sātavāhana kings are far from correct. They are not consistent with the evidence furnished by the inscriptions, coins and the architecture of the period. In a brief note like this a detailed consideration of the chronology of the Sātavāhanas is out of question. I have only tried to show above that Gautamīputra Sātakarṇi must be placed in 70 to 80 A.D., and it is wrong to make him a contemporary of Nahapāna.

The date assigned to him above raises strong presumptions in favour of Gautamīputra Sātakarṇi being the founder of the Śaka Era. I would have been myself inclined to accept this view but for the fact that none of the Sātavāhana inscriptions mention the Śaka Era. This becomes all the more striking when we find the Rudradāman inscription of 130 A.D. dated in that era and the Sātavāhana inscription of the same period only mentioning the regnal years of the ruling king. If any of the Sātavāhanas was really the founder of the Śaka Era, it is very natural to expect their inscriptions to be dated in that era. Tradition may, for a moment, be left out of account; and the protagonists of the orthodox view must satisfactorily explain the absence of the Śaka Era in the Sātavāhana inscriptions.

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## REVIEWS.

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### Studies in Indian Painting.

A Survey of Some New Material ranging from the Commencement of the  
VIIIth Century to *circa* 1870 A.D.

BY NANALAL CHAMANLAL MEHTA, *Indian Civil Service.*

With 17 Plates in Colour and 44 Half-Tone Plates.

Bombay : D. B. Taraporevala Sons & Co., Kitab Mahal, 190, Hornby Road, 1926.

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THIS work may be rightly called the finest book that has ever come out from the Indian press. The printing is excellent, the half-tone pictures are beautifully reproduced, and especially the coloured plates are a wonder of execution. The publishers may be proud of the splendid get-up of their publication. Evidently it wishes to vie with Brown's *Indian Painting under the Moghuls*; and though the external appearance of Mr. Mehta's work is as good as the Oxford publication, yet its contents is far behind those of its model. Mr. Mehta's book is not a systematic study of Indian painting, but a collection of disconnected papers and notes, some of which had been already published in *Rupam*. This circumstance causes a great disappointment in the reader, who naturally expects an organic treatise on Indian painting.

Nevertheless the papers are good and interesting and their criticism is sound. The author says that the object of the volume is "to bring together some new materials for the study of Indian painting". This primary purpose of Mr. Mehta is fully accomplished. There are new materials indeed in *Studies in Indian Painting*, not only for the study of Indian painting, but even for the general history of India. The Pallava paintings of the Sittannavasal cave—known only through a short note of Prof. Jouveau-Dubreuil in *The Indian Antiquary* of 1923; the Gujarati paintings of the XVth century; the Benares school presented as an offshoot of the Mughal School; the beautiful paintings of Manaku and Chaitu of the Tehri School, are several new features studied in a masterly way by Mr. Mehta.

His studies are interspersed with abundant historical information, which is the necessary background to any study of art. The civil history of a nation explains many a phenomenon of the history of its art. Mr. Mehta is cognizant of the historical sources of India, but occasionally forgets to give the references to them. We come across some quotations from the *Memoirs* of Emperor Jahangir and from Abul Fazl's *Akbar Nama* without any reference.

Two of the papers have special interest for the historian: 'Secular Painting in Gujarat' and 'A Painted Epistle by Ustad Salivahana'. The first presents a series of paintings in an early MS. of Vasanta Vilasa, which are a first class source of information for the history of Indian dress. The second deals with an

illustrated historical document of the time of Emperor Jahangir, which refers to a farman of this Emperor prohibiting the slaughter of animals during the eight days of the Paryushana. This farman was obtained by two disciples of Vijayasena Suri, the successor of Hiravijaya Suri in the leadership of the Jain community of Gujarat. Beautiful Mughal paintings accompany this letter : in one of them Jahangir is shown giving the farman to the two Jaina gurus ; in the other these gurus are presenting the farman to their master Vijayasena. We should be pleased to see this valuable letter critically published together with the paintings.

Mr. Mehta does not agree with Dr. Coomaraswamy as regards the denomination 'Rajput painting'. He prefers to call it 'Indian painting'. His contention seems well founded. Nevertheless we do not endorse the following statement of his : "Hindu painting can be sub-divided into various classes such as Brahmanical, Buddhist, Jaina, etc." Does Mr. Mehta forget that he prefers the term 'Hindu' to Coomaraswamy's 'Rajput', because "it fixes the attention more on the cultural and religious forces which inspired and modified its peculiar development"? For I feel sure that he does not confuse Jainism and Buddhism with Hinduism, as some European authors do.

Mr. Mehta's way of defending the lack of perspective in Indian paintings is remarkably ingenious. Certainly this is one of the most striking differences that distinguishes Indian paintings from European paintings. But is this an essential characteristic of the former, or only a defect in the execution? The learned author tries to explain this apparent fault by showing the different purpose of the Indian painter. True, some Indian paintings look like bird's eye views ; and studied from this point of view, perspective is not lacking in such paintings. But was this actually the purpose of the painter? May we apply this explanation to all Indian paintings?

*Studies in Indian Painting* is a good book. The student of Indian Art ought to read these pages written with sound reasoning and calm criticism. And even the mere dilettante will be pleased in going through them ; for besides being good, it is also a beautiful book.

H. HERAS, S.J.

## Journal of the Department of Letters, Vol. XIV, Calcutta University.

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VOLUME XIV of the *Journal of the Department of Letters* of the Calcutta University is just to hand. It contains the result of the labours of various research workers. A very important contribution is that of T. Das Gupta, M.A., on "Aspects of Bengali Society from old Bengali Literature". Considerable materials regarding the social, political and religious history of Bengal lie strewn over the pages of old Bengali literature. But most of these records contain high-flown panegyrics bestowed lavishly by court parasites on their patrons, the Rajas, whose cause they avowedly espoused. Through the maze of this tangled web of exaggeration the author has traced the thread of life as it really was. His treatise is exhaustive and all credit is due to him for his indefatigable research on the subject. The article comprises many chapters detailing the manners and customs, ship-building and commerce, costumes, ornaments, culinary art, pastimes, warfare, war-music, Hindu-Moslem unity, architecture, religion, education, castes and professions, agriculture and economic condition. The period covered is from the 10th to the 16th Century.

N. C. Chatterjee, M.A., Bar-at-Law, contributes an article on "The Conception of Positive Law in Ancient India," in which he shows the Austinian Doctrine to be irreconcilable with the ancient or modern conception of Law. He also traces in a subsequent chapter the evolution of State and Law.

J. C. Ghatak, M.A., contributes an illuminating article on "The Date of Mricchakatika from Astrological Data".

In giving a brief account of Malayalam Phonetics, L. V. Ramaswami Aiyar, M.A., B.L., traces the history and development of the language from earliest times. He has made as close an adaptation *as possible* of the International Phonetic Association's script to the language.

H. Bruce Hannah, Bar-at-Law, in an entertaining article, suggests a solution of certain problems in ancient Egyptian Chronology.

H. C. Ray, M.A., has given a very interesting and comprehensive survey on "War in Ancient India". There are other minor articles all of which form valuable addition to existing knowledge on the subjects.

C. B.

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## Manu's Land and Trade Laws.

BY VAIDYANATHA AYYAR, ESQ., B.A.

IN this valuable little book "Manu's Land and Trade Laws", Mr. Vaidyanatha Ayyar, B.A., expounds several new theories, which, I am sure, will be welcomed by every reader of Ancient Indian History, as the best contribution to our knowledge on the subject. Though the early period is shrouded in mystery, the author has taken immense pains to penetrate deep into the recesses of the so-called Dark Ages in the Hindu Period and convince the reader with his arguments, regarding the origin, antiquity and authorship of the Code of Manu. He takes us as far back as 2300 B.C. and shows us that the Code of Manu is not a code compiled by some unknown person about 300 B.C. or 200 A.D. as alleged by Doctors Bühler, Burnell and others, neither is it a foundation of the queer medley of consistent systems of jurisprudence administered by the Privy Council and the High Courts of India under the name of Hindu Law as thought by Prof. V. A. Smith. He justifies the statement by a careful study that the Code of Manu is Sumerian in origin and was compiled in the present form by Parashuram in about 2300 B.C., as King Hawenarabi's Code of Babylon, the Assyrian Code and Hattic Code of Cappadocia. He then gives us an interesting account of the extent of "Baratha Khandam", the land and trade laws, the conditions of society, civil life and polity disclosed by the Code of Manu. In the chapter dealing with the law of ownership and property, taxes, tolls and duties, the reader is given a vivid idea of the different well-organized departments of State administration, the gliding scale of rates and the property division from the Vedic Period which passed through different stages of evolution. But what deserves the greatest praise is the beautiful and well-arranged matter bringing out the central theme of the book, namely, the evolution of the individualistic idea of property from the primitive law of the village communities to the fully developed Ryotwari System of Chana-ky'a's times, 320 B.C.

The later chapters dealing with the Smrithis, Kautilya's Arthashastra and the Origin of the Village Communities must be read by all interested in early Indian History as they cover quite a good number of original ideas and theories—the result of the author's extensive and laborious research. I hope that the future scholars will collect together, like Mr. Vaidyanatha Ayyar, more materials and not merely stick up to the deceptive linguistic and literary evidence of the feeble light thrown by the Sanskrit works of a later period. If a number of such books are written, I do not really see why they should not make the early history of Hindustan interesting and accurate, like the early history of most other countries

C. B.



**Bhim Singh :****A Romance of Moghul Times.**

BY FRANK R. SELL, ESQ.

*(Messrs. Macmillan & Co.)*

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THE hero of the romance, Bhim Singh, is a son of the Rana of Mewar : the heroines are imaginary figures. The reader's interest in the story of the discomfiture of the Moghul Emperor, Aurangzeb, is sustained by the introduction of an element of fiction into the incidents of the period. Mr. Sell's accounts of the boar hunt, military operations and the court of Aurangzeb are very interesting reading. History and fiction are so well blended in the romance that it is difficult to believe that Premabai, the representative of the best traditions of the Rajput race, is a creation for which we are indeed obliged to Mr. Sell and his fine imagination. The book which has been neatly and well got up is a credit to its author and deserves to be in the hands, particularly, of every student. As a story of Rajput chivalry it is unrivalled.

S. S.

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# XVIIth International Congress of Orientalists,

INDIAN INSTITUTE,

OXFORD.

*21st April, 1927.*

DEAR SIR,

At the concluding meeting of the XVIth International Congress of Orientalists, held in Athens in 1912, it was agreed that the next Congress should be held in OXFORD. Having obtained the assent of the Vice-Chancellor of Oxford University, and the approval of the Royal Asiatic Society of Great Britain and Ireland, and of the leading Oriental Societies in France, Italy, Germany, Holland, and in America, the members of the Oriental Faculty of Oxford University are making arrangements for holding the XVIIth Congress here during the week beginning Monday, August 27th, 1928.

Coming after so long an interval, it is hoped that the XVIIth Congress may be notable not only for its truly international character, and the number of its participants, but also for the importance and originality of the communications made to it.

I am desired to say that the Oriental Faculty of Oxford University would be grateful for an assurance of public support, and for any publicity which your Society can give to the proposals now made. A Circular Bulletin with fuller information as to membership, arrangement of sections, and other matters, is being prepared, and will shortly be issued.

Yours faithfully,

C. N. SEDDON,

*Secretary.*

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## Seventeenth International Congress of Orientalists at Oxford, 1928.

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IN accordance with a decision made at the concluding meeting of the Sixteenth International Congress of Orientalists held at Athens in 1912, it was suggested that the Seventeenth Meeting should be held at Oxford. Arrangements are therefore being made for this at Oxford in the week beginning 27th August, 1928. An Organizing Committee has been formed under the Chairmanship of Professor F. W. Thomas, Boden Professor of Sanskrit at Oxford.

The constitution of the Congress has been arranged as follows :—

PRESIDENT.—The Right Hon. Lord Chalmers, G.C.B., LL.D., D.Litt.

GENERAL COMMITTEE.—The Members of the Board of the Faculty of Oriental Languages at Oxford.

ORGANIZING COMMITTEE.—*Chairman*.—Professor F. W. Thomas ; *Members*.—Professor D. S. Margoliouth, Professor W. E. Soothill, Professor S. H. Langdon, Professor F. L. Griffith, Mr. G. R. Driver (*Treasurer*), Mr. C. N. Seddon (*Secretary*).

TIME AND PLACE OF MEETING.—Proceedings of the Congress will begin on Monday, August 27th, 1928 ; and conclude on Saturday, September 1st. Sessions will be held in the Indian Institute and neighbouring University and College buildings. Proceedings will be arranged in general and sectional meetings.

ARRANGEMENT OF SECTIONS.—Sections have been constituted provisionally as follows :—

(i) General (Anthropology, Ethnography, Prehistoric Archæology, Comparative Mythology and Folklore) ; (ii) Assyriology, and kindred Subjects ; Ancient Mesopotamia and Asia Minor ; (iii) Egypt and Africa (iv) Central and Northern Asia, with Tibet ; (v) The Far East, Indo-China, Malaysia, Polynesia ; (vi) India and Iran, Indo-European languages of Asia ; (vii) The Old Testament, Hebrew and Aramaic ; (viii) Language, Literature, etc., of Islam ; (ix) Oriental Art.

The Committee will decide to what section any papers shall be held to belong, and will endeavour, as far as possible, to prevent kindred papers from being read at the same time.

The Sections will be under the control of Sectional Presidents, and will have their own Secretaries. The languages recognized in ordinary use at the Congress will be French, German and English. If it is desired to use any other language, permission must be obtained from the President of the Section.

It is hoped that the subscriptions received will be sufficient to enable the Proceedings of the Congress to be published in part or whole ; in which case each full member will be entitled to receive a copy.

QUALIFICATION FOR MEMBERSHIP.—The fee qualifying for full membership is One Pound Sterling. Members may obtain tickets for persons belonging to their families at half the above fee, and such persons will be entitled to all the privileges of membership except a copy of the published Proceedings. Those who wish to become members should send their subscriptions to the Treasurer, International Congress of Orientalists (G. R. Driver, Esq., M.C., M.A., Magdalen College, Oxford).

ORGANIZING COMMITTEE'S INVITATION.—The Organizing Committee now desires by this Bulletin to offer a cordial invitation to all interested to join the Congress, and to give it their support; and also invites members to contribute papers. It is requested that the titles of papers offered be sent so as to reach the Secretary not later than March 1st, 1928.

INQUIRIES.—All inquiries and correspondence (other than applications for membership, which should go to the Treasurer) should be addressed to the Secretary, International Congress of Orientalists, Indian Institute, Oxford.

C. N. SEDDON,

*Secretary.*

*Oxford, June, 1927.*

## THE K. R. CAMA ORIENTAL INSTITUTE.

### Essay for "The Sarosh K. R. Cama Prize" of Rs. 225.

THE Executive Committee of the K. R. Cama Oriental Institute invites an essay from Avestan scholars for the above prize of Rs. 225, containing a lucid and thoroughly intelligible translation in English of the following Yashts, in due accordance with grammar and philology, with notes and comments wherever necessary :—

- |                    |               |                 |
|--------------------|---------------|-----------------|
| 1. Aban Yasht.     | 3. Mah Yasht. | 5. Gosh Yasht.  |
| 2. Khorshed Yasht. | 4. Tir Yasht. | 6. Meher Yasht. |

The essay bearing only the *nom-de-plume* of the writer on the front page should be submitted to the undersigned on or before the 31st December 1928. The full name and address of the writer should be submitted with the essay in a sealed cover bearing only the *nom-de-plume* on the outside.

172, Hornby Road,  
Bombay (India),  
24th August 1927.

JIVANJI JAMSHEDJI MODI,  
*Joint Honorary Secretary.*

## THE K. R. CAMA ORIENTAL INSTITUTE.

### Essay for "The Naoroji Pestonji Cama and Navajbai Naoroji Cama Prize" of Rs. 1,000.

THE Executive Committee of the K. R. Cama Oriental Institute invites a prize essay on "The History of the Peshdadian and Kyanian Kings of Persia, based on all sources, especially Avesta, Phalavi and Pazend" for the above prize of Rs. 1,000.

The essay bearing only the *nom-de-plume* of the writer on the front page should be submitted to the undersigned on or before the 30th June 1929. The full name and address of the writer should be submitted with the essay in a sealed cover bearing only the *nom-de-plume* on the outside.

172, Hornby Road,  
Bombay (India),  
24th August 1927.

JIVANJI JAMSHEDJI MODI,  
*Joint Honorary Secretary.*

# List of Subscriptions and Donations received during the Quarter ending 30th June 1927.

Names.	Volume.	Amount.		
		RS.	A.	P.
Messrs.				
K. R. Srinivasa Iyengar, Bangalore	Life Membership Donation in settlement	50	0	0
M. S. H. Thomson, Sussere	XVI & part XVII	7	0	0
Dr. Cowan Holburn, Bangalore	XVII	5	0	0
Pandit Kulada Prasada Mallik, Monghyr	"	3	0	0
M. Arunachalam Iyer, Bangalore	"	5	0	0
S. Srinivasa Iyer, Vellore	"	3	0	0
Dr. K. V. Gundopanth, Bangalore	"	5	0	0
J. R. Sivasubramaniam, Bangalore	"	5	0	0
R. Rama Rao, Mysore	"	3	0	0
V. S. Bakhle, Satara City	"	3	4	0
Prof. P. M. Modi, Bhavanagar	"	3	4	0
Oriental Book Agency, Poona	XVII—3 & 4 and XVIII—1 & 2	5	4	0
T. A. Swaminatha Iyer, Madras	XVIII	3	0	0
K. S. Ramaswami, Trincomalai	XVII	3	4	0
A. B. Dhruva, Ahmedabad	"	5	4	0
S. Narasimha Rao, Atmakur	"	3	4	0
P. M. Somasundaram Pillai, Bangalore	"	5	0	0
N. Seshadri, Bangalore	part for XVII	2	0	0
Suryaprasad Mahojar, Gaya	XVIII	3	0	0
K. Ramavarma Raja, Cranganore	XVII	2	0	0
C. K. Venkataramaiya, Bangalore	"	5	0	0

# Books presented or purchased during the Quarter ending 30th June 1927.

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## Presented by—

### Government of Mysore.—

Report of Forest Administration in the Mysore State for the twelve months ending 30th June 1926.

### Mysore Archæological Department.—

Annual Report of the Mysore Archæological Department for the year 1926.

### Government of India Central Publication Branch, Calcutta.—

Annual Report on South Indian Epigraphy for the year ending 31st March 1926.

### Asiatic Society of Bengal.—

1. Memoirs of the Asiatic Society of Bengal, Vol. IX, No. 3, pp. 51-130.  
Geographic and Oceanographic Research in Indian Waters, by R. B. Seymour Sewell, Part III.  
Maritime Meteorology in Indian Seas.
2. Memoirs of the Asiatic Society of Bengal, Vol. VIII, No. 6, pp. 317-418.  
Chemistry in 'Iraq and Persia in the Tenth Century A.D., by H. E. Stapleton.

### Surveyor-General of India.—

Seringapatam Guide Map.

### Author.—

1. The Earliest Monuments of the Pandya Country and their Inscriptions, by K. V. Subrahmanya Ayyar.
2. Manu's Land and Trade Laws, by R. S. Vaidyanatha Ayyar.

### Government of Madras.—

The Private Diary of Ananda Ranga Pillai from 1736 to 1761, Vol. XI., edited by H. Dodwell.

### University of Calcutta.—

Journal of the Department of Letters, Volume XIV.

### University of Mysore.—

1. Oriental Library Publications: Kannada Series No. 15. Kantirava Narasaraaja Vijayam by Govinda Vaidya, edited by Dr. R. Shama Shastry.
2. Oriental Library Publications: Kannada Series No. 16. Dharmamritam by Nayasena, Part II, Chapters 10-14, edited by Dr. R. Shama Shastry.
3. Oriental Library Publications: Sanskrit Series No. 69. Abhilashitartha-chintamani of Someswara Deva, Part I, Prakaranas 1-3, edited by Dr. R. Shama Shastry.
4. Oriental Library Publications: Sanskrit Series No. 70. The Vidya-madhaviyam of Vidyamadhava with Vishnusarma's Muhurthadipika, Part III, Chapters 11-15, edited by Dr. R. Shama Shastry.

## Purchased.—

The Indian Quarterly Register : 1926, Volume I, January—June. Edited by Nripendra Nath Mitra.

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## EXCHANGES.

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### Editors of:—

1. "HINDUSTAN REVIEW," *P.O. Box No. 2139, Calcutta.*
2. "INDIAN ANTIQUARY," *British India Press, Mazagaon, Bombay.*
3. "CEYLON ANTIQUARY," *The "Times of Ceylon", Colombo.*
4. "MODERN REVIEW," *91, Upper Circular Road, Calcutta.*
5. "THE HINDU MESSAGE," *Srirangam.*
6. "WEDNESDAY REVIEW," *Teppakulam, Trichinopoly.*
7. "THE SOUTH INDIAN RESEARCH," *Vepery, Madras.*
8. "THE EASTERN BUDDHIST," *The Library, Sinshu,  
Otani University, Kyoto.*
9. "THE CHRISTIAN COLLEGE MAGAZINE," *Madras.*
10. "THE EDUCATIONAL REVIEW," *Mount Road, Madras.*
11. "THE VEDIC MAGAZINE," *Gurudatta Bhavan, Lahore.*
12. "ZEITSCHRIFT DER DEUTSCHEN MORGENLANDISCHEN  
GESELLSCHAFT," *Halle, Germany.*
13. "THE SANSKRIT BHARATHI," *Burdwan, Bengal.*
14. "THE JOURNAL OF THE AMERICAN ORIENTAL SOCIETY,"  
*New Haven, Connecticut, U.S.A.*
15. "THE KALPAKA," *Tinnevely.*
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The  
**Quarterly Journal**  
of the  
**Mythic Society**

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Vol. XVIII]

OCTOBER, 1927

[No. 2

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**ELEPHANT-CATCHING: ANCIENT AND MODERN.**

BY P. S. GOVINDA RAO, ESQ.

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THE Khedda operations form a special feature of Mysore. Everything connected with that great leviathan (the elephant) seems to make a strong appeal to the imagination of most people and consequently whenever Khedda operations are in progress they attract a considerable amount of attention.

The word "Khedda" is a Hindustani term, meaning a small pit, commonly applied to circular trenches, designed for the capture of elephants. It is also called "Bangadi" in Hindustani and "Ane-pangandi" in Kanarese. This method of catching the huge denizens of the forest was long in vogue in Mysore. It is different in Bengal, Burma and Ceylon. In Mysore, circular trenches were excavated with a width of  $2\frac{1}{2}$  feet at the bottom, 8 to 10 feet at the top and a depth of 8 or 9 feet. This section was, however, found at times insufficient to confine huge rogue tuskers. Tradition goes to show that Hyder Ali had, more than a century and half ago, vainly made an attempt at Kakankote to capture elephants in herds, using something like our present Khedda system. His failure created in his mind an impression that no one would ever succeed in this work and his curse upon any one that attempted to do so is recorded on a stone standing near the scene of his endeavours. With the march of time the curse proved ineffectual as evidenced by the successes of the last fifty years.

It is interesting to note the ancient history of catching elephants and the manner in which Khedda operations were reported to have been conducted in India as far back as two thousand years ago. Of the various methods of capturing elephants described by the old Greek and Latin writers as in vogue among the ancient inhabitants of India, the Khedda system is one.

The following account belongs to the period between B.C. 200 (Megasthenes) to about A.D. 130 (Arrian). Megasthenes had been himself in India. The Indians hunted all wild animals in much the same way as the Greeks, but they captured the elephant in a manner which was quite peculiar. A convenient and level spot of a size which was ample enough for a large army to encamp, was chosen. A trench, 30 feet wide and 24 feet deep, was then dug round this perimeter and the spoil from it was thrown along the outer side to form a bank. At intervals within this bank were formed hiding places, which were provided with loop-holes from whence to observe the approach of the beast and the exact moment when they entered the enclosure. Only one entrance to the enclosure was left open and this consisted in a bridge (width not specified) covered with a deep layer of earth and turf and leaves, so that the animals might not suspect the existence of the bridge either before they came to it or when they were passing over it. A few very tame and well-trained cow-elephants were next driven to the enclosure to act as decoys and the observers then returned to their hiding places to await the development of the situation. It was considered as hopeless to expect a wild herd to enter the enclosure by day, but during night-time, the herd would smell or hear the cows and in their desire to reach them would enter the trap. The whole herd would be trapped because they would follow a large male which led them. Those watching in the shelters, knowing what had occurred, immediately proceeded to demolish the bridge. News of the capture was sent to the adjoining villages and the *kumkis* were brought up and kept in readiness for their part in the proceedings. Meantime, the enclosed herd was kept without water (food in actual accounts) in order to weaken and cow them. When the psychological moment had arrived, the bridge was rebuilt and the *kumkis* taken in for roping operations. A furious battle then took place and continued until the *kumkis* obtained the upper hand, when the roping commenced. First the leg ropes were put on and then the neck ropes. But in order that the neck ropes might have better effect, the necks of the wild elephants were incised with knives so that the ropes (described by Strabo as being made of raw ox-hide) might severely hurt the animals whenever they struggled and hence make them less ready to shake their heads and thereby throw off the men who had mounted them. Being now sufficiently weakened, cowed and roped up, the captured animals were tied neck and neck to the tame ones and led off to their stables. On arrival, they were

then tied neck and legs to stout posts and given food and the much needed drink. At first, the new captives refused to eat, and so the Indians stood round them and cheered them up with music and tom-toms by which the animals became so soothed as to take their food. During the process of roping up, the very young ones, the very old and obviously useless ones were purposely allowed to escape and no further notice was taken of them.

The above description raises several interesting lines of thought.

(1) *Bridge*.—The stress that is laid on the deep layer of soil placed above the bridge, which was evidently built low down in the ditch, indicates that it really was a bridge that had to be passed and not a narrow cut of the solid ground left between the extreme points of the ditch's perimeter.

(2) It will be noticed that there is no reference whatever to the preliminary or the final drive which is such an important feature of the present-day operations. The ancients were, if anything, more highly skilled in their knowledge and handling of elephants than the men of the present day.

(3) As a corollary to these two items, the omission of any mention of the modern poised gate which is a much simpler contrivance than an elaborate and strongly built bridge. The reason for adopting the bridge in lieu of the gate is perhaps that a poised gate necessitates a narrow entrance and a narrow causeway whether bridge or solid ground. The depth of the ditch being so narrow, it seems improbable that not one alone but a whole herd of elephants would thrust themselves on to such a narrow causeway flanked on each side by a deep ditch. Again, it is said that the captured animals, as soon as they were roped up, were taken out of the enclosures. It is true that it is noted that they were quite cowed. But in any event, it would be a difficult job to take elephants *two* if not *three* abreast (they were tied neck to neck) with perhaps one or two others butting in behind, over a causeway flanked by a ditch twenty-four feet deep. So we may conclude that there really was a bridge and that the ancients had excellent reasons for preferring a bridge to a gate, even though the bridge involved building up and dismantling on two occasions.

The statement that very young elephants were deliberately allowed to escape indicates that herds were not only plentiful but easily captured whenever wanted; and that Khedda operations were of pretty frequent occurrence and that their management well understood. Elephants in those days were used not only for ceremonial purposes but also for war and for export. And from these causes, not to mention disease and death, the depletion of the tame stock was presumably great and made frequent replacement necessary.

*Old System of Capturing Elephants*.—About ninety years ago, permission used to be given to the public to destroy or otherwise drive away the wild elephants, when they damaged the ryots' crops by firing the jinjal, a rude sort of small cannon fired from a tripod stand loaded with a round bullet

of half a pound and half a pound of powder; and the bait was a reward of Rs. 25 on the production of tusks, ears, tails and nails of the destroyed elephants; tusks being omitted for females. As this was found to cause wholesale destruction of elephants, it was stopped and the "pit system" introduced. The following are the chief methods adopted for the capture of wild elephants:—(1) Pit-falls, (2) Noosing or Maidan Shikar, (3) Hunting with trained females, and (4) Driving into Kheddass or enclosures.

The following is Mr. Sanderson's description of pit-falls:—

"A most barbarous method of catching wild elephants is pit-falls, dug in their paths and into which they fall with a readiness, which is remarkable in animals which are usually so cautious in all sorts of ground. The pits are generally arranged in some confined pass at seasons when the elephants are not in the neighbourhood, or under particular trees, which they are in the habit of visiting for their food or leaves. The standard measurement for pits in Mysore is  $10\frac{1}{2}$  feet long by  $7\frac{1}{2}$  feet broad and 15 feet deep. This is a tight pit as to area for a large elephant, but is purposely made so as to prevent male elephants using their tusks to dig down the sides, which they manage to effect in a day or two, if they are left to themselves. The depth of the pits being so great, it may be imagined that an immense majority of the elephants that make the descent have their limbs dislocated or broken or receive permanent internal injury, even if they are not killed in the pit, as sometimes happens. To prevent such mishaps as far as possible a strong bar is fixed across the mouth of the pit in the centre, upon which the elephant's neck usually falls; and though it bends or breaks with his weight, it tends to make him go down more level than he would otherwise do. It is seldom the hunters trouble themselves to put boughs in the bottom of the pit to break the force of the elephant's descent. In Mysore a perfect network of pit-falls is to be maintained by the Maharaja, the Forest Department and a few by lessees as also in Madras. In these a large number of animals were taken annually. An immense proportion died from the effects of this violent mode of capture and those that lived were only small ones, whose weight did not lead to such serious effects as in full-grown ones.

The Sholigars and Kurubars used, when pits were in vogue in Mysore, to be entrusted with their supervision. If an elephant fell into one, they were supposed to take the news to the station where the tame elephants were kept near the jungles and these would then be taken by their drivers to secure the animal. Between the delay made by the jungle people and the laziness of elephant-men, many elephants were starved to death in the pits or so reduced as never to be got out of the jungle alive. Many other wild animals fell into the pits besides elephants. I have myself known of several

bisons, a pair of bears and two pairs of tiger cubs falling into them. Deer constantly did so and it was for the sake of their flesh as much as for the trifle that they were paid, that the jungle people used to attend to the pits. In the hot weather, when cattle were taken to graze in the forests, they frequently fell in and of course were left to their fate, as their legs or ribs were more often broken than not. The Commissariat and Forest Department soon gave up the pit plan; but the Maharaja required a few elephants annually and even though ten or twenty were killed for every one that lived, it was his only method of procuring them. As the forests were full of herds, it did not matter from an economic point of view how many were killed. I have heard of four elephants falling into one pit together and strange to say, three survived on this occasion, probably from having the fourth as a cushion at the bottom. This one was trampled to death and almost out of all shape.

The pits were often arranged with great art by the hunters, an open one being perhaps left in view, in avoiding which an elephant would fall into a covered one alongside; or several were dug in close proximity into which others might fall when fleeing in terror at the bellow of fright which the first gave on finding the earth sinking under him.

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Since the Maharaja's death, the pit system in Mysore has happily been given up. The atrocious cruelties to which elephants were subjected by it are too horrible to think of."

*Noosing or Maidan Shikar.*—This kind of Maidan Shikar was formerly prosecuted to secure large male elephants when wandering alone. Tame females accompany the wild male, day and night, under the direction of their mahouts and prevent him from sleeping until he becomes so weary and exhausted as to fall into a sound sleep, when his legs are pinioned together and his subsequent capture becomes a matter of no difficulty. The following is Mr. Sanderson's description of the "Noosing system":—

"The largest male elephants are seldom caught with the herd by the Khedda plan from their habit of frequently absenting themselves from their companions or making their escape out of the circle of men by their boldness. They are the most valuable animals and are usually caught in the following manner or in some modification of it.

Four or five steady females, ridden by their mahouts, who partly conceal themselves with a dark-coloured blanket as they lie on their elephants' necks, are taken to the jungle, where a single male is known to be and are allowed to graze as though they were wild ones, and to gradually approach the male, if he does not himself take the initiative. Some wild males make off at once, probably scenting the men on the elephants' neck, but they do not appear to notice them. When the male can be got to abandon himself without reserve



to the society of the females, they keep in close attendance upon him and so it is sometimes two days and nights before he can be secured ; a party of spar mahouts follow on foot to relieve the riders every twelve hours. For this purpose, the tame females are withdrawn one at a time and the mahout is changed out of yoke of the wild one. The relieving party also, generally, has a spare elephant carrying the ropes and chains required when the wild elephant is secured. At night, the wild male probably leaves the forest to visit the fields of adjacent villages, whither he is closely escorted by his treacherous friends. If he enters a field to graze, one female is posted at each corner and by a signal gives notice to the others when he leaves it. This is to avoid the damage which the whole parties entering the corn field would cause. Towards the morning, the elephant retires to the forest and when he shows signs of going to sleep, the tame ones close round him. Should he not appear to be very somnolently inclined, devices are used to keep him awake, such as moving off all the tame elephants where he generally follows so as to keep him without rest and tire him until he shall resign himself to slumber without reserve. Some elephants can be got to eat opium in sugar when, the mahouts say, they are soon reduced to helplessness, but I never had an opportunity of using it myself. The tame Delilahs under the directions of their riders, close round their victim when he is generally asleep, and two mahouts slip off with coils of rope and tie the slumbering Samson's hind legs together very securely. Half an hour is frequently spent in doing this. The tame elephants then withdraw, and the men on foot perhaps slap the wild one and tell him to be of good cheer. His terror in perceiving men so close to him may be imagined and his rage and dismay at finding his legs bound together pass description. If he has been secured to a tree, he uses every effort of which he is capable to snap his bonds. If only his hind legs have been fastened together, he makes off as best as he can, dragging them after him. The other elephants follow at a distance, and when he is completely exhausted, they again approach keeping out of reach of his tusks as he will now use them and the men fasten him to a convenient tree and camp close at hand. In a day or two, a cable is fixed on his neck, and with one still on one hind leg, he is led away to an appointed station to be trained. A large proportion of the fine elephants captured in this way die from the injuries they receive from the severe restraints necessary to control them during the first few days."

It appears that this system was only adopted during the reign of His Highness the late Maharaja Mummadi Krishnaraja Wadiyar Bahadur, with rare and uncertain success.

In 1894, an attempt was made to noose a huge tusker that came to Peelkhana in Sacrebyle forest and was given up as hopeless on account of its turbulence.

In 1896, a good tusker and a huge mukhna (tuskless male) was secured by this plan under Mr. Khedda Shama Iyengar's guidance.

*Noosing from Trained Elephant Backs.*—This is the most spirited and exciting though by no means advantageous manner of hunting the wild elephant. It is practised in parts of Bengal and Nepal, but it is unknown in Southern India. It is far from being an economic method as the wear and tear of the tame elephants engaged is very great, nor can full-sized wild ones be captured by it. It is conducted as follows:—Three or four fast tame elephants are equipped with a rope each; at one end is a noose, the other is girthed securely round their bodies; on some the noose is the near side and on the others to the off. Each elephant has three riders—the mahout on its neck to guide it; the nooser kneeling on a small pad on its back holding the open noose in his hands; and a driver seated near the root of its tail, whose duty it is to hammer it unmercifully on the hinder part with a spiked mallet. This impels the elephant to much greater exertions than any use of the driver's goad though that inducement is by no means omitted. Thus equipped the elephants approach the wild ones. These at once make off and the chase commences through or over everything, the men saving themselves by being swept off if the jungle is thick as best they can. When the ground is favourable two tame elephants endeavour to range up on opposite sides of a fleeing wild one, encouraged thereto by the unlimited use of the spiked mallet. When the elephants are well near the wild one, the nooses are cast and generally encircle its neck. If this is effected, the tame elephants are checked and other nooses are soon secured, but the choking of the wild one or fatal accidents to the tame ones or their riders by being pulled over or dragged into ravines are not unusual accompaniments of this rough work. Hand noosing is practised only in Ceylon, where a couple of hunters on foot manage with wonderful skill and activity to noose the hind legs of an elephant while running away and to secure the trailing ends of the ropes to a tree as it passes.

*Driving into Kheddas or Enclosures.*—The Khedda operations in Mysore District (Kakankote) are done in two ways: (1) River drive; (2) Land drive. In both these plans, real Khedda enclosures and roping stockades, *viz.*, Khedda No. 2 and No. 1 are situated in Kakankote forests, though elephants are driven into Khedda No. 2 from Begur Range forests which are divided from Kakankote forests by the intervening Kapini river.

*River Drive.*—This is indeed a very interesting and imposing sight to view by august visitors like Viceroys, Maharajas and Princes compared with the Land drive which is somewhat more risky. In this operation, a good bit of well-clothed forest, say about six square miles, is surrounded by a broad clear cut line on three sides, the river forming the fourth side; *i.e.*, from

the summit of the Star Hill in Begur forest, radiating lines are cut and cleared to the edge of the river Kapini. These drive lines and other interior concentrating lines are of various lengths, 50 to 100 feet wide. The tree-growth thereon is clear felled, and flush to the ground, and grass shrubs and even intervening branches are completely cleared, so that any person standing on the summit of the hill can clearly see elephants cross the line and enter the surround. In addition to these radiating lines, other minor drive lines are cut and cleared across them to enable the shortening of the surround while driving the trapped herd to cross the river to enter the Kheddas.

The Khedda enclosures, called No. 2 and No. 1, about  $4\frac{1}{2}$  and  $1\frac{1}{2}$  acres respectively, are surrounded by a V-shaped trench, 8 feet at the top, 4 feet at the bottom and 8 feet deep. On the outer edge of the trench, a wooden palisade is erected all round 10 feet high out of stout jungle poles with thinner cross poles than the uprights. Each Khedda is provided with two ponderous gates, one facing the river and the other the road in Khedda No. 2 and one on the north-side and the other south-side in Khedda No. 1. These gates are kept open at ordinary times for the jungle herd of elephants to pass along their accustomed paths and browse in the enclosure and beyond, quite unconscious that the one would be closed and the other shut when the enclosure would be turned into a prison or trap on some fatal day. The construction of a roping stockade inside the enclosure, *i.e.*, at some convenient point in the perimeter, is commenced soon after the elephants are surrounded. The V-shaped trench is discontinued, *i.e.*, interrupted at the gates and at the entrance of roping stockade.

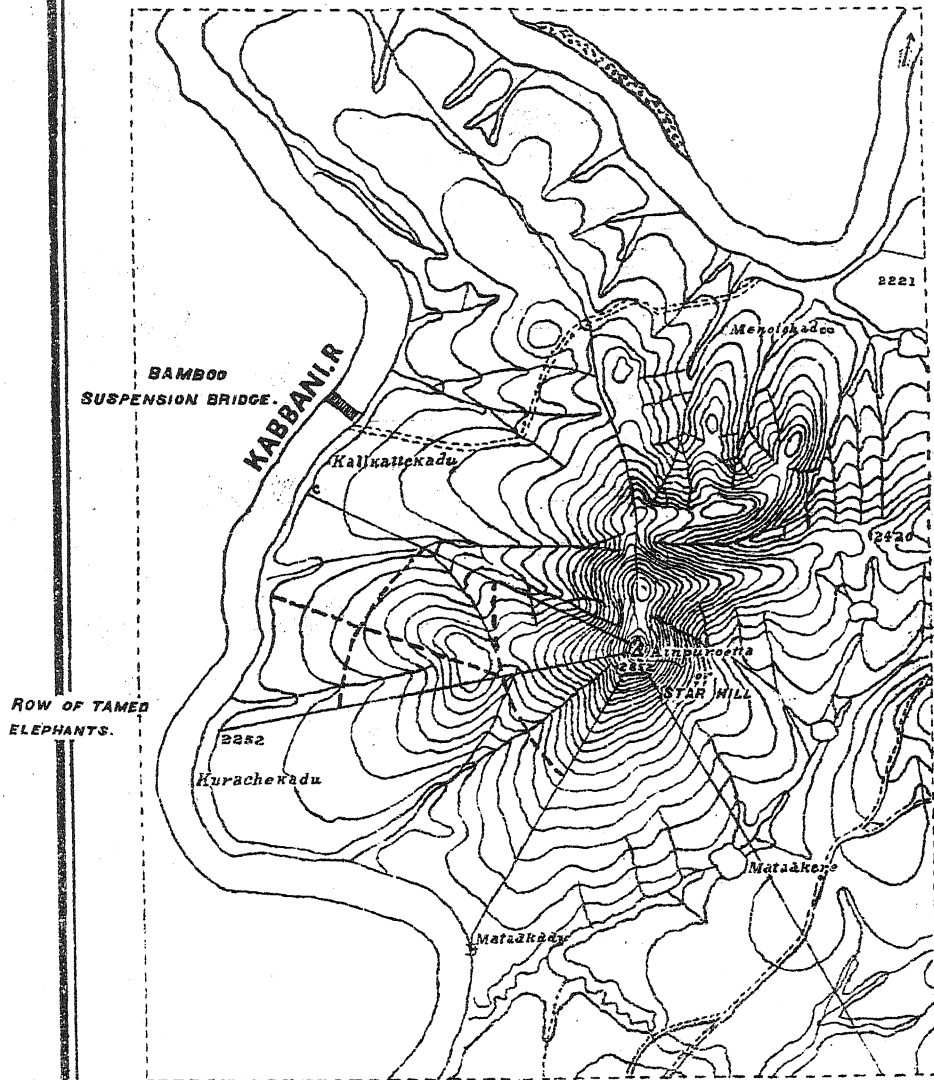
In Khedda No. 2 a funnel-shaped way is formed by erecting a wooden palisade on both sides, from the river to the gate of the Khedda to guide the elephants from the river side to the gate.

A month or so before the august visitor comes to witness the Kheddas, a scouting party (generally Kurubars) is selected and sent to the interior of the forest to locate a herd and to know which way it is tending to travel. Some trained men halt within a mile, when half of them file off to the right and half to the left. Along these diverging lines which are kept up till they reach one of the surrounding lines men make a tapping sound when the herd moves on. When they approach the right side, the men on that side repeat the tapping sound. Then the herd turns to the left and hearing similar sound this side also moves on in a straight way. Should the herd smell no danger, it moves on unexcitedly till it reaches the surround line. When once the herd passes the surround line, the overseer that is watching the line from the summit of the Star Hill A gives a signal when the men collected at points A, B and C rush up and post themselves 30 feet apart and immediately light up the debray heaps that will have been collected at regular

# BEGUR STATE FOREST

SCALE:-

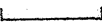
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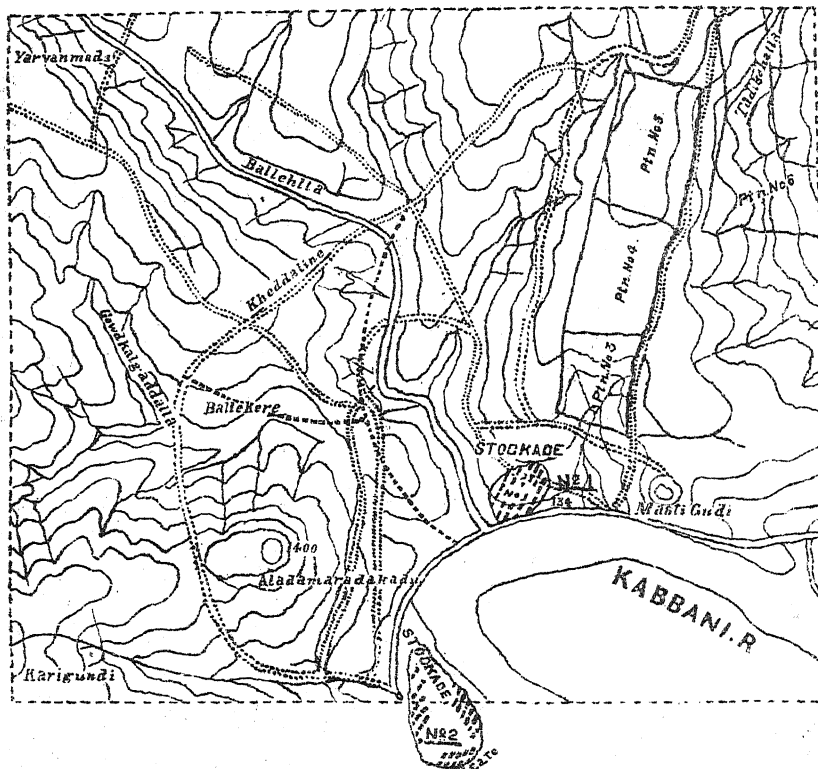
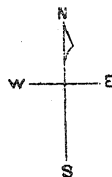


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# KAKANKOTE STATE FOREST.

SCALE  = 4 MILES



intervals on the surround line. The elephants can now only escape by crossing the river, but this is prevented by the bank on the other side having been scarfed steep beforehand. In addition, men will have been posted on this side of the river also. Besides this, two bamboo temporary bridges will have been put up from points B and C to the other bank of the river. Four or five days before the arrival of the guest, the Maharaja and the party come to see the driving operations, the large surround is kept on shortening day after day by men moving gradually from line to line under guidance and thus there will only be a small surround area where the herd will be kept roaming for the day. On H. H. the Maharaja with the distinguished guest coming to the scene and taking up a position at a spot just outside the stockade wherefrom a good view could be obtained, a signal will be given for the drive to begin. Immediately the distant yelling of the beaters accompanied by toot of horns, beat of tom-toms and empty tins fill the air on the other bank. They gradually grow louder and louder as the men advance through the jungles and approach the herd. The herd generally gets funky, tries to run towards the river and finally plunges into the river, when the men dog their footsteps from behind. When once the herd plunges into the river, it has only to go towards the right or left or straight on. To the right, the temporary bamboo bridge with men holding torches and making noise, scare them, whereas to the left there will be a number of tame elephants posted at short intervals, on each of which there will be some men holding torches and making noise. Hence the herd is left to face the Hobson's choice and has only to go straight. In this direction, there will be absolute silence maintained and in addition an hour or two before the drive starts, a number of tame elephants will have been driven in the funnel-shaped track marked G in the sketch and made to urinate and dung so as to make the track appear to have been trodden by a herd just before. This inducement tempts the bewildered herd to take up this path and get into the Khedda which is screened by fresh leaves, etc. As soon as the leader gets in, the herd simply follows in a file and as the last enters in, the watch in charge of the gate drops the gate. Immediately, the men that are kept all round the trench light the fire and make the confusion of the elephants worse so that it is a pitiable sight to see the trapped herd standing huddled together in the middle of the Kheddas quite bewildered and shaking through fear.

*Land Drive.*—In this a jungle herd that is located in Kakankote forest will be driven into the large enclosure that is bounded on one side by the Doddahadi Forest Road (west), Antharasanthe-Kakankote Road (south). This latter road is further strengthened by a wooden palisade along it. On the north and the east, the boundary line consists of 60 feet cut line (see fig. 2). As soon as the trackers send the report of having located a good herd, some trained hunters would be sent to drive the herd silently towards the surround.

area. When these picked men under a good Jamedar and Forest Officer bring up the herd into position for the actual drive, the drive is conducted similarly as described before under "River drive surround". The herd passing one of the surround lines, the gang of men collected at the heads of eastern and western boundaries file off at regular intervals and the beat is started. At one or two places, especially where the elephants are likely to make special attempts to escape, the men would be closely posted in addition to the locations of stops with guns and bamboo clappers, especially near the wings and palisades by the sides of the enclosure or Kheddas. On the entry of the elephants into the surround, the surround line will be posted up at thirty feet apart and the lines may further be strengthened by double lines under difficult or dangerous circumstances.

If the opportunities are favourable the drive is pushed on, narrowing and shortening the surround at the same time by crossing the interior lines with beaters and guarding the same by double lines of protection. Thus the herd is forced to enter the open gate, which is kept silent, *i.e.*, into Khedda No. 1. As soon as the last animal enters the Khedda, the gate would be dropped by the watcher, who would be sitting on a tree. The hunters would then distribute themselves rapidly according to previous arrangement, round the Khedda, two men at every twenty yards. These men fire the debray heaps that will have been collected for the purpose beforehand at regular intervals. All would be made secure in a short time, and the trapped elephants would then be left for the night in the Kheddas, being well guarded all round by the men, with steady fires.

As noted above, the Khedda operations are generally done to entertain the august visitor, primarily ; and to prevent the havoc caused by the elephants to the neighbouring ryots, secondarily.

The roping of the captives offers great opportunities of entertainment to the visitors. A platform is generally constructed close to the gateway and round the roping stockade. From this, the spectators would obtain a close view of the most interesting roping operations. Before the Royal party of spectators reach the platform, the captured elephants would have all been driven in into the roping stockade, where they would temporarily be confined compactly while the gate of the outer enclosure would be opened and tame elephants, *i.e.*, "Kumkis" admitted. These are generally highly trained animals and are exceedingly docile and will allow men to move about among their huge legs taking care not to injure them intentionally or by inadvertence. The mahouts are all experienced Bengal men under the command of veteran Bengali Jamedars.

The work of tying up the captured elephants would be commenced thus. Tame elephants would range up along each side of the large wild one, whilst



another would be placed face to face to it to prevent it from advancing. The rope-tiers now slip to the ground and standing close behind the wild elephant, dexterously secure its legs together by thin ropes in a figure of 8. Each rope would be about 20 feet long and not thicker than the thumb to be light and easily handled. Five or six of such ropes would be put on to each elephant's hind legs, which are thus closely hobbled together. During this time, the tame elephants, on each side of the wild one, squeeze it tightly between them; and, being unable to see behind it will not be aware of what is being done as the ropes are lightly tied. A soft rope of loosely twisted jute, as thick as a man's arm is now secured to one hind leg and the end would be taken to a tree by the rope-tier. Two turns being taken round the tree, the wild elephant is backed against it and tied up. This is done by the tame elephants between which it stands being backed, whilst the elephant facing the wild one would butt and force it to retire. The struggle of the animal will not be of any avail as the combined efforts of three animals, as powerful as itself and acting under the guidance of their mahouts, nullify its opposition. It is very soon braced close to the tree and tied fast. It is not till the tame ones leave it that it realizes its position or uses its full efforts to free itself.

In this way, the larger elephants are quickly secured when the time of the youngsters comes later on. For all animals of  $5\frac{1}{2}$  feet and under, the simple plan of lassoing is adopted. Each tame elephant will have a stout rope fastened round it, about 15 feet of the rope being free and having a running noose at the end. This is held open by the mahout with both hands and cleverly thrown over the head of any young elephant that offers a good chance. More entertainment is afforded to the visitors by this part of the operations, perhaps, than by any other. It often happens that the young elephant shakes off the rope at the first attempt to lasso it and, after this, it seems to become quite alive to what is intended against its liberty. It is a point of honour with each mahout to secure any particular elephant calf when he once begins and the efforts of the calf to keep out of the way of its pursuer are fully equalled by the latter's pertinacity. No one would meddle with another's chosen game, though it often happens that one man may secure a calf that would give a friend a tedious chase. All is done with a deliberation that makes the same indeed charmingly amusing. Many a time even after the cast was made the noose might be thrown up by the ever-ready trunk, the youngster would get his fore feet through and become caught round the body instead of the neck, when its cries and ridiculous straits are very laughable. In such cases, another noose is generally thrown round its neck and the first one released. The slip-knot of these nooses have to be secured at the right point round the neck by a small cord to prevent them drawing too tight and strangling the calf.

The youngsters do indeed give an amount of trouble out of all proportion to their size, whilst their loud cries and petulant behaviour are a great contrast to the silent and dignified manners of full-grown ones. Thus all the elephants will be secured and after large cables have been put round the necks of the big ones, they are all marched out tied to one or two *kumkis* according to their size and are then fastened in a large clearing among the trees where the undergrowth has been removed. Here they are fed and taken care of for some time when efforts for taming them are put in hand. This method of capture is adopted in Ceylon also, where the enclosure is called "*Craff*".

*Taming of Wild Elephants.*—This is a difficult work in the department often attended with danger. After roping the elephants in the stockade with the help of *kumkis*, they are brought out and picketed in the stables. For nearly two days, the new captives through dejection and sorrow, sparingly eat food but drink water as usual. Immediately after they are picketed they kick and try to reach the capturers. In order to prevent this, ropes are tied to their body and legs. From the third or fourth day legs and necks, through the tension of the ropes, are cut and swell, when it becomes necessary to change the ropes from one leg to the other or change the places. Lazy and careless mahouts leave the ropes on the wounds. But the supervisor or the veterinarian should arrange to prevent the ropes touching the sores, otherwise maggots will soon collect in the wounds. It is highly necessary for the veterinarian to keep a good stock of antiseptics and carbolic oils and washes to prevent maggot formation and induce healthy granulations and thus bring about speedy healing. In former days when a veterinarian was not available, the mahouts would keep a large stock of medicine prepared with mud, turpentine, kerosene oil, carbolic acid, sometimes oil, lime, tobacco and other ingredients in the shape of paints and cover the wounds once in two hours with a cloth brush at the end of a stick. It takes a month for the wounds to heal. Unfortunately, if elephants begin to kick the ground from anger (as some do) with their toes and hurt that part, it becomes very difficult to cure it and the animals die from inflammation.

About a week after, corn put in grass and tied in small bundles called "*Kuchera*" is thrown before the animals in the evenings to induce them to familiarity and accept coaxings. On the expiry of ten days or a fortnight, a training process begins and it is called "*jorekhuLOYI*" by the mahouts. The men in the beginning stand at a distance and brush the body of the animal singing different songs. The elephants get quite bewildered at this process and try their best to kick and rush at the tormentors.

Before the process begins, ropes are tied to all the legs thereby restricting their movements. This process of taming is carried out five times a day.

The elephants soon become tame by night training as they will recognize the human voice better at night than during the day. A week after, the men gradually approach the elephants and begin to brush the body with hands and twigs and to ride them from behind after a time. On the first day, the elephant shakes the body trying to throw off the man but gradually receives him on its neck. The elephants feel very ticklish but get gradually used to it ; after twenty days, they are taken out by the side of *kumkis* for a walk and taught to imitate the *kumkis* in stopping, walking, etc. while in water they are made to sit by pressing the back with a stick, whenever these processes are observed ; the usual expression for sit, walk and stop are repeated on each occasion which these animals remember and obey. The chief qualities of elephants are docility, gentleness and patience. They never refuse to do what they are required to do. These animals, although they have huge and powerful bodies, are subordinate to men from timidity.

In concluding this note, no information on (1) the type of Chamarajanagar Forest elephants (short and thick set), as compared with Kakankote elephants (tall and weak-bodied), (2) feeding of elephants, (3) finding their age, (4) their fecundity, (5) period of delivery, (6) daily habit, (7) breeding of elephants, (8) musty elephants, (9) diseases of elephants, (10) treatments, etc., has been set forth.

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## A DOCUMENT WITH THE EARLY REVENUE OF BOMBAY.

BY SYLVESTER LOBO, ESQ.

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"IF we turn our attention" writes Dr. G. da Cunha, "to the times when the Portuguese took possession of Bombay, we shall find, both from the indigenous *bakhars* (chronicles) and tradition, as well as from a few manuscripts left by the Portuguese themselves, that Bombay, properly so called, was simply one of a cluster of rocky mountainous islets scattered in the waters of a muddy estuary. Such a group of parched and desolate islands as they then appeared to be, although worthy of the study of a geologist, could not have at all excited the ambition of a conqueror and consequently their political history has from the beginning merged in that of the adjacent mainland; with which, and with the more important islands lying to the north, it has shared the vicissitudes of conquest, and the rule of numerous dynasties and chieftains."<sup>1</sup>

The study into the early condition of this desolate island is both interesting and instructive to a research student. Varied has been its growth and development under different rules and dynasties, and steady has been its progress until we find it to-day as one of the world's best cities both in beauty and wealth. But though from times immemorial this swampy island was inherited by the Hindus, from whom it passed into the possession of Muhammadan invaders and was finally ceded to a foreign power by the Sultan of Gujrat in 1534, it had not in the least showed the signs of prosperity and higher development that it has done under the British, whose intelligence and enterprise has raised it in the present day to its proud position as the modern capital of one of the great Presidencies of India.

Apart from any reference to the political history of Bombay it is worth gleaning into its past when the island comprised a few hamlets, gardens, plantations and large swampy tracts of land partially overflowed by water and traversed by various creeks making it an ideal spot to the sportsman; while the very shallow waters offered abundant game to the net of fisherman. Past annals fail to disclose evidence as to any material worth at this stage. The history of the produce and revenue goes back as far as its acquisition

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1. da Cunha, *Words and Places in and about Bombay, Ind. Ant.*, III, p. 293.

by the Portuguese,<sup>2</sup> and though under an able administration of distinguished statesmen of a foreign nation for a period of more than a century, it failed

2. The ancient constitution of Bombay under the Portuguese was feudal. Lands were measured and parcelled out among the officers of the State and other distinguished inhabitants reserving a small quit-rent amounting to from four to ten per cent of the ordinary rental and in return they had to furnish military service to the king. In the general distribution of lands, like the seven villages of Bassein, (Cf. Xavier, *Gabinete Litterario das Fontainhas*, IV, p. 217; da Cunha, *The Origin of Bombay*, p. 207), Bombay was also divided into seven villages namely,—Mahim, Bombaim, Parell, Varella, Syva, Varell and Mazaguão. Mahim was the *Cacabe* or head of the group and had its own *mandovim* or custom-house. It is stated that it was not leased as a whole to anyone but it is believed to have been parcelled out into many leases.

Soon after the cession of the island to the Portuguese in 1534, the *Cacabe* of Mahim was rented for 36,057 *fedeas* (one *fedeas* is equivalent to 15 *reis* or four pies). The *mandovim* of that *Cacabe* was let out for 37,975 *fedeas*. The island of Mazaguão (Mazagon) yielded 8,500 and Mombaym (Bombay) 17,000 *fedeas*. The four villages, Parell (Parel), Varella (Vadala), Syva (Sion), and Varell (Varli or Worli), were granted by D. João de Castro, the Viceroy, to one Manoel Serrão for 412 *pardaos* (*pardao* is about 300 *reis* or nearly eight annas). Some writers distinctly say that the Franciscan Missionaries possessed four Churches in Bombay ..... the second was at Parel, eventually changed into the former Government House; but the demesnes of Parel belonged to the Jesuits. (da Cunha, *op. cit.*, pp. 143, 204.) Tieffentaller also states that the Jesuits had landed properties at Parel; their estate together with the improved buildings is now known as the 'Parel Government House'. (Noti, *Joseph Tieffentaller*, p. 8.) But at the time of the cession of the island to the British Crown, the Jesuits of Bandra were the sole possessors of the first three of these villages; and the village of Worli which formed an annexe of the Manor of Mazagon was the property of the family of the Tavoras. Dr. da Cunha surmises that after Manoel Serrão, the village of Worli also was granted to the Jesuits who exchanged it with Antonio Pessoa for Bandra and Khar in Salsette, and was finally sold to Antonio da Sylva, yielding 34 *mudas* of rice and representing a yearly revenue of 700 rupees. (da Cunha, *op. cit.*, pp. 222, 224.) It is also recorded that the *mandovim* of Valupuecer (Walkeshwar) was rented to one Possagy for sixty *fedeas*.

Simão Botelho, the *Vedor da Fazenda* (Comptroller of the Treasury) who has written the *Tombo de Estado da India* or Register of Rents, besides giving us general information, has left minute details regarding the quit-rent of the distributed places. Dr. da Cunha and Conde de Ficalho, two careful researchers, referring to his records state that the quit-rent of the island of Bombay in 1534, stood at 14,400 *fedeas*, when it formed part of the kingdom of the Sultan of Gujrat. In 1535, under the Portuguese rule, it was raised to 17,000 *fedeas*; in 1536 to 23,000 *fedeas*; in 1537 to 29,000 and in 1538 to 27,000. During these four years the rent was collected directly from the farmers, but in the year 1539 the island was rented for 26,292 *fedeas*; in 1540 for 28,190 *fedeas*; in 1541 for 28,100; in 1542 for 30,000; in 1543 for 31,000; in 1544 for 38,500; in 1545 for the same amount; in 1546 for 1,375 *pardaos*; in 1547 the island yielded the same, but in 1548 owing to the zeal of Simão Botelho, the rent was raised to 1,342½ *pardaos* and the island was leased to one Mestre Diogo. After him it is supposed to have passed to the famous botanist Garcia da Orta, who is presumed to have paid the same rent. (Cf. da Cunha, *The Origin of Bombay*, p. 107; Conde de Ficalho, *Garcia da Orta e o seu tempo*, pp. 272-273.) The precise date of the grant of the island to the physician is unknown and various doubts have arisen on da Orta's right of possession of the island. One of the reasons for doubt is that an ardent and careful worker like Senhor J. H. da Cunha Rivara was unable to discover among the records of the Portuguese Archives the *alvara* (instrument) by which the grant was made to the botanist. Moreover the whole island was granted to one person during da Orta's life. Finally it was stated by the physician that it had been granted to him in perpetuity. The latter two questions have been sufficiently discussed by various writers. (Vide da Cunha, *The Origin*, loc.

to show any signs of those undreamed of possibilities it actually held in store of greater achievements, which we have steadily noticed during its rapid development within the last two centuries.

The Union of Charles II, the King of Great Britain, with D. Catharina of Portugal, added to the British Crown what we term to-day the *Urbs Prima in Indis*. As fights and disputes are the rule in the fate of great cities when passing from one hand to another, the island of Bombay, although peacefully ceded, did not fail to witness a crisis during its transfer from one foreign power to another. It had to be ceded legally as a part of dowry of the Portuguese Princess according to the treaty of 23rd June 1661 between Portugal and England. Instead the island became a subject of hard contest between the two alien nations for a period of four years when finally the instrument of possession was signed by Humphrey Cooke and the Portuguese authorities of Bassein on the 18th of February 1665 in the Large House of D. Ignez de Miranda.<sup>3</sup> Since then, the island formally ceased to be one of the settlements of the Portuguese Power in the East.

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*cit.*; Conde de Ficalho, *Garcia da Orta, loc. cit.*; Soares, *Garcia da Orta, a Little Known Owner of Bombay, J.B.B.R.A.S., XXVI*, pp. 223-224.) As regards the first statement, it would be logically incorrect to say that because an industrious researcher like Cunha Rivara failed to obtain the deed of grant, the physician's claim over the island was uncertain. I may quote here one instance respecting the papers of the said Archives. When the same researcher was requested (*Cf. O Oriente Portugues*, Vol. I, p. 139; Saldanha, *Historia de Goa*, Vol. I, p. 310) to find out some documents on the early relations between the Emperor Jehangir and the Portuguese, which were believed to be existing according to some early reference (Carvalho, *Questões da Índia*, p. 447), he clearly declared that the only existing document of the diplomatic relations between the two powers was the firman of 1714. But in fact, the Rev. H. Heras, S.J., during his first visit to the Archives was able to unearth two earlier documents relating to the same subject; one being of 1615 and the other of 1667. *Cf. Heras, Jahangir and the Portuguese, H. R. C., Lucknow Meeting*, pp. 72-80. The number of papers is so vast and in such a dilapidated condition that I may definitely state that much light is yet to be thrown on this particular subject.

3. At the time of the cession of Bombay to the British this lady was the sole proprietress of the *Cacabe* of Bombay with its cocoanuts, rice-fields and the duty of *Bandrastal* (*Bandrastal* is a duty or tax on the right to distil spirit from the palm-juice. *Cf. da Cunha, loc. cit.*, p. 263) and she is designated in the documents of the time as the *Senhora da Ilha*, Lady of the Island. The Large House which is mentioned above previously belonged to the famous physician Garcia da Orta who has been proved to be the former landlord of this beautiful island with its *quinta* and his manor-house, surrounded by spacious pleasure grounds, with a garden planted with choice fruit trees, where the rich naturalist lived and used to rest during his professional visits to the Sultans and Princes of the North who sought his advice, especially to the Court of Ahmednagar where he was in real intimacy with the Sultan's son. (*Cf. da Cunha, op. cit.*, p. 101; Soares, *Garcia da Orta, loc. cit.*, p. 225; Conde de Ficalho, *Garcia da Orta*, p. 236.) Dr. Fryer who was in Bombay in 1673 remarks: 'About the house was a delicate garden voiced to be the pleasantest in India.'

Although it has been clearly proved that the island was once the sole property of Mestre Garcia, the date of the grant of the island and the period of its inheritance by the botanist has remained unanswered till the present. Historical evidence is obscure from the time of its lease

From the documents we have been able to peruse on the subject, it is not evident that any official statement of the revenue of Bombay was presented earlier than 1667. At the close of this period, two years after the transfer was made to the British Crown, Captain Henry Gary, the succeeding Governor after the death of Sir Gervase Lucas, transmitted with his letter to the King the following revenue of the island as improved by Sir Gervase Lucas and himself:— 4

		Amount of Rent in Rupees.	Amount of Rent in Xeraphins.
Rent of Mazagaon <sup>5</sup>	...	6,438 2 13	9,300 0 40
„ Mahim	...	3,321 1 69	4,797 2 45
„ Parel	...	1,645 3 54	2,377 1 56

to Mestre Diogo till it became the property of the famous Lady of the Island whose name is frequently mentioned in the documents of the time of its cession to the British Crown.

Dr. da Cunha, who is a keen student of the history of Bombay, discloses the text of an old official document of the 16th century, written in Portuguese. This document contains a list of all the villages, cocoanut trees, etc., which were made over to the British at the time of the formal cession of the island on the 17th February, 1665, before the public notary of Bassein of which a written agreement was signed by the Commissioners of the two nations. I give hereunder the translation of the list:—

Bamonavalle & Celtem : (*Pacaria*) Income, 15 *murās*, 4 *parās*, & 11 *adolis* of batte (rice).

Bandrastaes : Two hamlets of the distillers of toddy of the *palmeiras bravas*.

Bombaim : (*Cassabe*) 40,000 palm-trees of private persons and 5,000 belonging to the Company.

Cocoe : *Ilheo* (seaholm) at the extremity of the island.

Colvarias : Hamlets of the Kolis with the names of the villages to which they were belonging. Varoy—Parella—Sião—and Dirgavi.

Diravy : (*Pacaria*) Income, 8 *murās* and 8 *parās*.

Maim : (*Cassabe*) 93,000 *palmeiras mancas*; and some oarts (gardens).

Mazagam : (*aldea*) Income, 184 *mur.* and 250 *palmeiras bravas*

Matuguem : (*aldea*) Income, 65 *mur.*, 4 *par.* and 3 *adol.* and 10 *palmeiras bravas*.

Nagam : Income, 42 *mur.*, 15 *par.* and 15 *adol.*

Parella : (*aldea*) with its *Pacarios*—Boyvares.

Patecas : Island of Mazagão.

Romalla & Salgado : Income, 150 *mur.*, 15 *par.* and 15 *adol.*

Rauly & Matuguem : (Salt-pits).

Siam : (*aldea*) Income, 54 *mur.*

Siury : Vadalay.

Vadalla : with its *Pacarias* Syory-Gon-Wady. Income, 75 *mur.*, 4 *par.* and 4 *adol.*

Varoly : (*aldea*) Income, 34 *murās*.

*Cf. Ind. Ant.*, III, p. 249. (For the explanation of the terms, *vide* the end of the article.)

4. Malabari writes that this valuable statement has been taken from the MS. copy presented to the Bombay Geographical Society. Malabari, *Bombay in the Making*, p. 106. Campbell, *The Bombay Gazetteer*, XXVI, p. 24.

5. Mazagon is the only place whose history, the writers conclude, can be traceable from the earliest times. It is said that owing to the excessive liberality of the Viceroy, D. João de Castro, Antonio Pessoa was granted five villages and one island for the annual rent of little over 900 gold

		Amount of Rent in Rupees.	Amount of Rent in Xeraphins.
Rent of Vadela	...	1,203 1 20	1,738 0 40
„ Sion	...	547 0 40	790 0 60
„ Veroly	...	395 1 48	571 1 34
„ Bombaim	...	4,392 1 80	6,344 2 61
„ Tobacco staut or Frame <sup>6</sup>	...	6,611 2 16	9,555 0 00
„ Taverns	...	1,661 2 16	2,400 0 00
The account of Customs	...	12,261 2 16	18,000 0 00
„ Cocoanuts	...	12,261 2 16	18,000 0 00
		<hr/>	<hr/>
		50,640 0 88	73,870 1 18
More may be advanced	...	801 3 58	1,129 1 62
		<hr/>	<hr/>
Total	...	51,542 0 46	75,000 0 00
		<hr/>	<hr/>

Which at 13 xeraphins for 22s. 6d. sterling amounts to £ 6,490-17-9. Besides this account of the revenue Mr. Gary described in his letter the state of the treasury at the time and the measures he had adopted by enforcing new provisions and adding such men to the garrison as he could collect for its defence. The amount in the treasury stood at 16,000 xs., or £1,384. and the garrison numbered 285. All these were composed of French,

*pardaos*, while they used to yield, before this grant was made, not less than 2,500. Botelho vehemently protested against this, seeing it would cause considerable loss to the treasury; but unfortunately his protest had no effect. The island which was granted besides the said villages is presumed to be Mazagon. Previous to its lease in 1548, Mazagon was simply rented annually from 1534 to 1547, varying 8,500 *fedeas* in 1535, 11,500 *fedeas* in 1536, 15,000 in 1543, to 510 *pardaos* in 1544, rising at last to 550 *pardaos* in 1547, when the *arrendamento* or lease ceased. It was then *aforada* or granted for a quit-rent of 195 *pardaos* in gold and 3 *tangas* in silver to Antonio Pessoa and his wife. After the death of Antonio Pessoa in 1571, the island was leased to Lionel de Souza who was married to D. Anna Pessoa, daughter of Antonio Pessoa, being allowed to hold the Mazagon estate for the same annual rent as his father-in-law, namely, 195 *pardaos* in gold and 3 *tangas* in silver. Then after passing through the hands of two or more grantees during the course of one and half a century, in 1727 it came into the possession of D. Senhorinha de Souza e Tavora, then living as a *foreira* or tenant in Bassein. At last in 1731 it was sold to one Antonio da Silva, an inhabitant of Bombay, for 21,500 xeraphins. In the year 1767 the celebrated Manor of Mazagon, which, from 1548 to the time of the cession of the island, had remained entire and flourishing, dwindled down to a mere fraction and on its gradual decline this fragment was in the same year divided into various lots by the Honourable Company. (da Cunha, *De Origin of Bombay*, pp. 207, 224; Malabari, *op. cit.*, p. 379.)

6. In the other copy of the *Bombay Gazetteer*, the words are "Tobacco stanck or Farm" which, I suppose, are correct. Mr. Edwardes says that *Stanck* is a corruption of the Portuguese word *estanque* which means a shop. *Estanque de tabaco* means a snuff or tobacco shop and *estaqueiro* is a monopolist or a patentee. Therefore, it signifies the farming monopoly or the farm of the tobacco. (Cf. Edwardes, *The Revenue of Bombay, Ind. Ant.*, LIV, p. 5.)



Portuguese and natives. Only 93 English officers were on the list.<sup>7</sup> Also he stated that the island when properly cultivated would be very effective. Mr. Gary had followed the policy of his predecessor Sir Gervase Lucas and was making every effort to increase the king's revenue by some improvements without imposing any discouraging taxes on the inhabitants. But during Mr. Gary's government some friction arose between the Bombay and Surat authorities, one of the chief points being, as is shown by some writers—who nevertheless assigned other motives for the transfer of the island—the granting of passes to the native ships. This friction ended in bestowing the island, by the Royal Charter of Charles II of the 27th March 1668, on the Honourable East India Company at an annual rent of £ 10, payable on the 30th September of each year to the British Crown.

We have also on record a statement of the revenue during the first year of the Honourable Company transcribed by Sir William Foster of the India Office which was worked into an article for *The Indian Antiquary*, by the late Mr. S. M. Edwardes, who spared no effort in solving almost all the vernacular terms in the statement. Unfortunately it is beyond the scope of this paper to study in detail the text and explanation of the document; yet an outline of it to give an idea of the precious statement may be attempted:—

Yearly Savastall <sup>8</sup> or Rent Rowle of Bombaim and Jurisdiction.			
Bombaim : 82 <i>murās</i> , 1 <i>parā</i> and 10 <i>adolains</i> , <sup>9</sup> etc.	Xs.	15,374	1 61
Rents : of Tavernes (taverns) imports and Stanck of tobacco imports	...	12,675	0 00
Customs about	...	18,000	0 00
Mazaga (Mazagon) 225 <i>murās</i> , etc.	...	8,838	0 48
	Xs.	54,887	2 29

Yearly Savastall or Rent Rowle of Mahim and its Jurisdiction  
Drawne out the 31st July 1668.

Maym (Mahim): 24 <i>mur.</i> , 4 <i>par.</i> and 16 <i>adol.</i> , etc.	Xs.	14,195	1 14
Matunga: 55 <i>mur.</i> and 8 <i>par.</i> , etc.	...	814	0 08
Dozzory (Dharavi): 8 <i>mur.</i> and 2 <i>par.</i> , etc.	...	267	0 64

7. Campbell, *The Bombay Gazetteer*, XXVI, p. 24.

8. *Sevastae* is, according to Dr. da Cunha, a Marathi name for a tax of  $1\frac{1}{4}$  per cent, from *savā* meaning one and a quarter. Mr. Edwardes surmises that the word *Savastall* has been loosely applied to rent or assessment in general. Cf. da Cunha, *op. cit.*, p. 176, and *Ind. Ant.*, LIV, p. 4.

9. Although the amount of money represents here the rents of various other articles, the produce of rice alone is shown so as to form a comparison between the couple of documents we have transcribed in the text of the above article.

Pero Vazty his Patty <sup>10</sup> : 54 <i>mur.</i> and 5 <i>par.</i> , etc.	Xs.	839	1	76
Mucher & Yas <sup>11</sup> ... ..	"	94	2	17
Parella : 148 <i>mur.</i> , etc. ... ..	"	2,435	1	18
Vadala : 116 <i>mur.</i> , 22 <i>par.</i> and 18 <i>adol.</i> , etc. ...	"	1,764	1	02
Sury: 1 <i>mur.</i> , etc. ... ..	"	352	0	00
Pomela (salt-pit) ... ..	"	21	1	35
Coltem & Bomanelli <sup>12</sup> : 14 <i>mur.</i> 14 <i>par.</i> and 12 <i>adol.</i> , etc. ... ..	"	211	0	65
Very (Worli) 32 <i>mur.</i> , 12 <i>par.</i> and 10 <i>adol.</i> , etc.	"	1,204	1	65
	Xs.	22,200	0	44

Taking into account a xeraphin as equivalent to 1s. 6d. sterling, Mr. Edwardes fixes at this date (1668) the total revenue of Bombay a little over £ 4,000 and of Mahim and its dependencies to about £ 1,665. But if we value 13 xs. for 22s. 6d. sterling which we have shown in the previous case, the difference in the revenue of the two years shows a very insignificant variation. These are the only documents we have been able so far to obtain although many references have been found to the existence of others. Mr. Edwardes refers that, according to Foster's information, a report was made by Oxenden on the state of Bombay in the year 1669, but regrets that up to the present he has not been able to discover a copy of it. Perhaps further researches might bring to light the required information.

In all that has been said we have offered to the reader information gathered from English sources although the earlier documents bear reference to the works of the old Portuguese writers. But now we present a statement of the early revenue of Bombay during the British period acquired from a foreign source. It is a letter written by the Portuguese Viceroy, D. João de Saldanha da Gama, in 1727, enclosing therewith a detailed valuation report of the landed properties of private individuals of Bombay. The document is very curious and interesting because of the information it presents of the island which was secured by a foreign authority about fifty years after it had passed from its previous owners to the English. And it gives an account which may be taken as fairly accurate since it was carefully gathered for the purpose of the re-purchase of the island by the Portuguese sovereign.

10. *Pero Vazty his Patty* is assumed by Mr. Edwardes as Pero Vaz's assessment, from Marathi *paṭṭi*, 'cess', 'tax' or in the other sense 'ground', 'land'. *Ind. Ant.*, LIV, p. 6.

11. *Mucher & Yas*. It is difficult to identify these two places. The only conclusion arrived at by Mr. Edwardes after careful study is that they were two small villages adjacent to the 'drowned' lands, between which there was a ferry-communication at high tide. *Ibid.*, p. 6.

12. Bamnavale & Coltem are two places to the north of Parel. *Ibid.*, p. 6.

Since the time Bombay was handed over to Sir Humphrey Cooke in satisfaction of the claims of the dowry of the Portuguese Queen, the relations between the Portuguese and English administration in India, especially respecting the landed properties of Bombay, were far from friendly. Vexations and bickerings instead of diminishing were more or less on the increase and it appears that the Portuguese sovereign in order to put an end to the ceaseless complaints he was receiving from his officers and other distinguished inhabitants in India about the misunderstanding regarding the manorial rights of their properties at the hands of the English, made up his mind to get back the island if he could, by payment of a just price for it.

Campbell, with reference to the said document, consulting the *O Chronista de Tissuary*, writes in his monumental work entitled *Bombay Town and Island Materials*: 'Between 1726 and 1739 special enquiries in connection with a scheme for the purchase of Bombay by the Portuguese Government supply interesting estimates of the revenue of the town and island ;' and publishes partly a translation of the said document.<sup>13</sup> Dr. da Cunha also alludes to a similar request made by the Portuguese authorities and writes in his *Origin of Bombay* that the King of Portugal had written to the Viceroy, Count of Lavradio, in Goa, on the 23rd of March, 1671, requesting him by the first monsoon to send a detailed account of the values of the estates of private individuals of Bombay. The information was required for the settlement of the account of the second million of the dowry of the Queen of Great Britain as settled between the Envoy, Robert Southwell, and the Marquis of Niza and Marialva. But the requisite information was not supplied at the time on account of the limited time in which it was to be submitted, but an interesting report was made in the reply to the King explaining the state of dissatisfaction of the people at the misrule of the English.<sup>14</sup>

The following letter<sup>15</sup> was written by D. João de Saldanha da Gama, the Viceroy of Goa, to His Majesty the King of Portugal, on the 18th of January 1727, including therewith a statement of the revenue of the island of Bombay :—

Sir,

The attached information which I am submitting to Your Majesty is the most accurate I was able to obtain without revealing that secret as I had been instructed by Your Majesty. But by this it is not possible to adjust more value than the income, relying on the estimate of those that possess the fortifications and on the magnificence of the other buildings. It would be

13. Campbell, *Bombay Town and Island Materials*, III, p. 305.

14. da Cunha, *The Origin of Bombay*, p. 315.

15. Cunha Rivara, *Archivo Portuguez-Oriental*, Fasc 6, *Supplement*, pp. 287-292.

very useful to the service of Your Majesty if the measures we intended to take in these matters had been followed ; because in leaving the trade of that island on the account of this State, it would not only have profited the Portuguese Commerce by introducing all sorts of articles which are consumed in the dominions of Your Majesty and for which the Company had the full control, but also all those that are carried across the Ghauts into the kingdoms of the Marathas and the Moguls.

As regards the money which this State can have ready to make up the required capital, it seems to me that it can be easily collected from the income of this State in the following manner :—Your Majesty could allow all your Christian subjects to purchase the estates that are found incorporated in the Company according to their means, and judging from the state in which they are living, they will not be able to produce more than five hundred to seven hundred thousand *pardaos* ; for the rest of the amount Your Majesty should allow the Hindus to purchase, permitting them to retain the privileges which the English have granted to them. All this is convenient not for this object alone but also in the interest of those who are living in that island, where they have emigrated from the dominions of Your Majesty, lest they should leave it for the horror of the Inquisition. And since these men have attracted by their credit all the trade of Asia to that island, if they leave it for good they will carry it away with them and consequently the Customs of Your Majesty will remain without this source of revenue.

The Fathers of the Society will appeal for the restitution of their income, and I submit that Your Majesty ought not to accede to their request without receiving from them their (estates) value, as they have means enough to pay for them ; and when Your Majesty allows them to purchase all the remaining estates, I am sure that they in their own interests will not hesitate.

As regards the payment of the fortifications and the buildings, it seems to me that it will not be possible to succeed in this without the help of Your Majesty. It reminds me, however, that the Armenian Christians have made some requests to the Government of India to grant them a port whence they would erect at their own expense the necessary fortifications for its defence, subjecting themselves in everything else to the laws of Your Majesty, and as these people are oppressed by all nations, whether European or Asiatic, I have no doubt but they will embrace this project as soon as it is proposed to them. In case it fails by these means, Your Majesty will be necessarily forced to arrange the amount through your Royal Treasury, by sending either to this court or to this State the money in *patacas*<sup>16</sup> which

16. *Pataca* is a sort of ancient Portuguese coin worth 16 *vintems*. A *vintem* is equivalent to  $1\frac{7}{20}$ d.

produces fifty per cent gain, or in gold <sup>17</sup> which produces thirty per cent, and in order that Your Majesty may recover these expenses it may be easily done by means of obtaining from those Customs a certain percentage to be collected and set apart in a safe for the purpose of remitting it to this court in those articles which are in demand there, and which will also yield a good profit.

God preserve the most high and most powerful person of Your Majesty for many happy years. Goa, 18th of January, 1727.

Signature of the Viceroy : *João de Saldanha da Gama*.

### Information of the Estimated Acquisition Value of Bombay.

The Island of Bombay appears to be made up of the following landed estates :

The Aldea (village) Mazagão (Mazagon) which is granted to D. Senhorinha de Souza e Tavora, residing in the city of Baçaim (Bassein), yielding more or less 184 *murās*<sup>18</sup> of *batte* (rice) and 250 *palmeiras bravas*,<sup>19</sup> will fetch an annual income of more or less 4,000 *xerafins*,<sup>20</sup> and will be valued 40,000 xs. including the *foros* (quit-rents).

The Aldea Varoli (Worli) which is granted to one Antonio da Silva, an inhabitant of Bombay and now employed in the service of the Company as a clerk in the fortress of the same city and who acquired the same by purchase from the said D. Senhorinha, yielding more or less 34 *murās* of rice, will be valued 7,000 xs.

17. Campbell's version shows a slight error in this sentence. The original is *ou em ouro que produz trinta*, meaning 'or in gold which produces thirty per cent'. The word *ouro* must have been taken for *outro* which means 'other' and hence the version 'or in some other coin which might yield thirty per cent'. Campbell, *Bombay Town and Island Materials*, III, p. 307.

18. *Murā* is in Marathi *muḍā* and in Konkani *mudō*. A sort of spherical bale made of grass utilized to preserve cereals, especially rice. It was also used to transport cereals as a substitute for gunny bags. And since these bales are intended for sale, they hold a fixed quantity varying according to the different places, therefore they are used as a measure in various places in India. An actual *murā* contains ordinarily half candy or ten *curós* (one *curó* is equivalent to 2 *pailis*). According to Antonio Nunes, one *murā* contains 3 candis of rice but Candido Figueiredo shows 735 *litros* (*litro* is 2 seers) equivalent to one *murā*. Dalgado, *Glossario Luso-Asiatico*, II, p. 81.

19. *Palmeira brava* : *Borassus Flabellifer*, Linn., the Palmyra Palm or the Brab-tree (*tāl, tād*, etc.). The name 'brab' is derived from the Portuguese *brava* 'wild', 'uncultivated'. Watt writes that it is now known that the Talipot Palm of the older writers was not *Borassus* but *Corypha Umbraculifera*. *Borassus Flabellifer* is an erect graceful palm, dioecious, with terminal crown of fan-shaped leaves. *Corypha Umbraculifera* is the true Talipot Palm (*tala, tali*, etc.). A tall fan-leaved palm of Ceylon and the Malabar Coast cultivated in Bengal and Burma. Cf. Watt, *The Commercial Products of India*, pp. 169, 170, 428; Dalgado, *Glossario*, II, p. 149, 510; Blatter, *The Palms of British India*, pp. 72, 174.

20. *Xerafim* was an old Portuguese silver coin varied from 300 to 360 *reis*. This term is a corruption of the Arabic *ashrafī* or *sharīfī*, 'noble', which was applied properly to the gold *dīnār* of Egypt and also to the gold *mohur* of India. *Hobson-Jobson*, pp. 38, 974.

The Aldea Parella (Parel) with its *Pacarias*,<sup>21</sup> Boyvary, Pomala and Salgado, yielding 154 *murās*, 15 *parās*<sup>22</sup> and 15 *adolins*,<sup>23</sup> and some *palmeiras bravas* of little value, will fetch an annual income of more or less 4,000 xs. and will be valued 40,000 xs. including the *foros*. It is said, this Aldea now belonging to the Company was once belonging to the Jesuit Fathers.

The Aldea Vadalla (Vadala) and its *Pacarias*, Iyory and Gonvary, yielding 75 *murās*, 4 *parās* and 4 *adolins* of rice, and some *palmeiras bravas* of little value, will fetch an annual income of more or less 1,900 xs. and will be valued up to 19,000 xs. including the *foros*. Also this Aldea belonged to the Jesuit Fathers of the Arga College and at present belongs to the Company.

The Aldea Nagão (Nagam) yielding 42 *murās*, 15 *parās* and 15 *adolins* of rice, and some *palmeiras bravas* of little value, will fetch an annual income up to 1,000 xs. and will be valued 10,000 xs. including the *foros*. This Aldea was of the Jesuit Fathers and at present belongs to the Company.

The Aldea Matuguem (Matunga) yielding 65 *murās*, 4 *parās*, and 3 *adolins* of rice, and 100 *palmeiras bravas* of little value, will fetch an annual income of 1,700 xs. and will be valued 17,000 xs. including the *foros*. Also this Aldea was of the Jesuit Fathers and is actually of the Company.

The Aldea São (Sion) which belonged to Miguel Murzello Coutinho and at present belongs to the Company, yielding 54 *murās* of rice, and some *palmeiras bravas* of little value, will fetch an annual income of 1,400 xs. and will be valued up to 14,000 xs. including the *foros*.

The *Pacaria* Daravy (Dharavi) yielding 8 *murās* and 8 *parās* of rice, and some *palmeiras bravas* of little value, will fetch an annual income of 225 xs. including the *foros*, and will be valued 2,000 xs. This also belonged to the Jesuit Fathers and is actually of the Company.

The *Pacaria* Bamnavaly and Coltem, yielding 5 *murās*, 4 *parās* and 11 *adolins* of rice, and some *palmeira bravas* of little value, will fetch an annual income of 400 xs. and will be valued up to 4,000 xs. including the *foros*. This also belonged to the Jesuit Fathers and is at present of the Company.

21. *Pacária* is a suburb of a city inhabited by the poorest classes who dwell in small huts in the Konkan. From Marathi-Konkani *pākhādī* properly signifying 'adjacency', 'contiguity' derived from *pākh* of Sanskrit *paksa* 'wing'. Dalgado, *Glossario*, I, p. 126.

22. *Parā* is in Malayalam *para* and Neo-Aryan *paḍa*. A measure of capacity used for cereals, etc., of variable quantity in India. It holds about 20 *litros*. Lopes Mendes writes that a *parā* contains 8½ *paiās*. *Paiā* is equivalent to 4 seers (Damaun). Lopes Mendes, *A India Portuguesa*, II, p. 255. According to Macedo Pinto, one *parā* is equivalent to 20 *litros*. Macedo Pinto, *Breves Estudos*, p. 10. Dalgado, *Glossario*, II, p. 168.

23. *Adolim* is from Marathi *adholī* derived from Sanskrit *ardha* 'half'. It is a measure of capacity equivalent to 2 seers. *Ibid.*, I, p. 12.

The *Cassabê*<sup>24</sup> of Bombay. *Cassabê* means a grove of trees and oarts. This *Cassabê* belongs to various freeholders and will contain, besides the other trees, up to 40,000 *palmeiras mansas*.<sup>25</sup> The Company possesses in that from five to six thousand palm-trees belonging to various landlords and the value of each palm varies from six to nine xs. according to its quality.

The *Cassabê* of Mahim will contain up to 70,000 *palmeiras mansas*. The Company possesses some properties in this *Cassabê* which belonged to the Jesuit Fathers and other freeholders and these will be 23,000 *palmeiras mansas*. Also it possesses some oarts which were taken over by the Crown in default of heirs. Moreover it is stated that in these two *Cassabês* there are some plots of rice which will yield 592 *murās* and are held by various landlords; from these the Company will have 18 *murās*, 7 *parās* and 6 *adolins*, which belonged to the Jesuit Fathers; and 18 *murās*, 5 *parās* and 4 *adolins* which were of other landlords; which were acquired by the said Company under some pretence or other, or for failure to pay revenue dues. The Company also possesses some plots of rice in the *Cassabê* of Bombay under the same pretence and claims, which will yield from 8 to 10 *murās*.

Moreover, there are some salt water plots of rice in the island of Bombay which are recent and cultivated now by some people during the British dominion and will fetch an income out of *foros* of more or less 200 xs. to the Company.

Besides the estates mentioned above there are some *marinhas*<sup>26</sup> of salt in the same island, viz., Rauly in the Aldea Matunguem which produces 36 *raixas*<sup>27</sup> of salt annually and all at an ordinary rate gives an income as 1,200 xs. and in the same rate will be valued up to 12,000 xs. including the *foros*.

The *arminhas* of Siury (Sewri) and Vadalay (Vadala) in the Aldea and Pacaria of the same names will produce 34 *raixas* of salt which gives an income of 1,100 xs. annually and will be valued more or less 11,000 xs. including the *foros*. There are some more *marinhas* which are private ones and will produce from 9 to 10 *raixas* of salt.

24. *Cacabê* or *Cassabê* is derived from Persian *khasabeh* and Marathi *kasabā* meaning the principal place of a *pergunnah* or district. da Cunha, *The Origin*, p. 95. Dalgado, *Glossario*, II, p. 479. Hobson-Jobson, p. 283.

25. *Palmeira mansa*: I cannot find a botanical name for this palm. Mr. Edwardes takes the word *manca* in Portuguese, meaning 'defective', 'imperfect' and identifies the trees as 'palm-trees not fully grown'. But the word which perhaps through an error written as *manca* should be either *mança* or *mansa* 'not wild', 'sative'. Therefore *palmeiras mansas* must mean 'palm-trees that are cultivated'. Edwardes, *The Revenue, Ind. Ant.*, LIV, p. 36.

26. *Marinha* is a salt-pit or a place where salt is gotten.

27. *Raixa* is a heap of salt of a certain quantity gathered at the salt-pit. From the Marathi *rāx* of Sanskrit *rāxi* 'heap'.

At the end of the island to some part in the west, the Company possesses a place called *Ilheo Coleo*<sup>28</sup> which will be valued from 4 to 5 thousand xs.

There are besides in the island of Bombay various *Colluarias*<sup>29</sup> or hamlets of Colles (Kolís) who are fishermen, *viz.*, Bombaim, Mazagão, Varoly, Parella, Sião and Daravy. These *Colluarias* are annexed to the Aldeas of their names and therefore their description is not sent separately as its produce cannot be definitely ascertained. All belong to the Company, and will fetch an annual income up to 7,000 xs.

Also there are in the same island two *Bandrastaes*, *i.e.*, the right (*jus*) or power to extract the sap of the *palmeiras bravas* and *mansas*, and commonly known as *sura* (toddy) of which the country liquor is produced, namely, the *Bandrastal* of Bombay, which belonged to D. Ignez de Miranda, widow of D. Rodrigo Monsanto, is actually of the Company; and the *Bandrastal* of Mahim, which belonged to the Jesuit Fathers, also belongs to the Company. Both these *Bandrastaes* will fetch an annual income of 2,000 xs. and will be valued 20,000 xs. including the *foros*.

This is the most elaborate information which at present can be given of the estates of Bombay and for a clear explanation may be read as follows: This entire island yielded to the Royal Treasury out of *foros* at the time of the Portuguese dominion 5,000 xs. annually, when the English took possession of it in the year 1665; but in 1662 (*sic*)<sup>30</sup>, the president of the Company being Gerardo Aunger, these five thousand were raised to twenty thousand including in those twenty thousand the said five thousand and the *foros* of the estates which at present belong to the Company.

The cause of this rise is not given as it has no bearing on the case.

### Rents and Rights of the same Island.

In the year 1668, the Customs-Houses of Bombay and Mahim were being rented annually for 60,000 xs., in the year 1708 for 52,000 xs. suffering this decrease which can be understood owing to the reduction of the taxes of all the goods that entered therein; and since at present they run on the Company's account, its income is not definitely declared, but they will fetch an annual income of 55,000 xs.

28. This place is now known as Colaba.

29. *Colluaria*: Actually this word seems to be a corruption of the Marath *kūlvārī*, a labourer who is bound to the service of the landlord in the Konkan. The term is still current. But in the above text Mr. Edwardes' conclusion that the word is a corruption of *Kolivada* or *Kolivadia* 'hamlets of Kolís' seems to be correct. He applies it as a head-tax collected from the Kolís in return for the right to fish in the open bays of Bombay, Worli and Parel. Dalgado, *Glossário*, I, p. 298. Edwardes, *The Revenue*, etc., p. 4.

30. This date appears to be wrong. Gerardo Aunger was the Governor of Bombay in 1668.



The produce of tobacco leaves is being rented annually for 49,000 xs.

The produce of *urracas* or country liquor will be rented more or less for 12,000 xs. annually.

The *foros* of the lands of the City will fetch an annual income of 3,000 xs.

The passage fare between Mahim and Sião will fetch annually more or less 1,200 xs.

There is no income at present of oil, provisions, spicery, cotton, and *bangue* (bharg) since the British have reduced it.

### Fortresses of the Island of Bombay.

The fortress called *Castello de Bombaim* 'Bombay Castle,' situated in the city and surrounded by six bulwarks, is a modern structure begun in 1716. Its artillery is not known but it has been sufficiently garrisoned.

The fort called *Dongrim Cavalleiro à Cidade* 'point d'appui' is of little value.

The fort situated in the Aldea Mazagão which is furnished with a sergeant and 24 soldiers has a small bulwark with 3 guns.

The fort Siury situated on the beach facing our Aldea Maula, is furnished with 50 *sipaes*<sup>31</sup> and one *sobedar*<sup>32</sup> and will have 8 or 10 guns.

The fort of Sião facing our Aldea Corlem (Kurla), appears to be possessing a small tower and a cuirass with 9 or 10 guns, garrisoned with 60 soldiers and a captain.

The fortress of Mahim which appears to be of three bulwarks and possesses up to 30 guns and a garrison of 100 soldiers, is situated on the beach facing the Aldea Bandora (Bandra).

The fort of Varoly situated on a hill in front of the *Hermida de N. S. do Monte* (Hermitage of Our Lady of the Mount) in the same village, will have 7 or 8 guns and a garrison of one *Alferes* (Ensign) with 25 soldiers.

The Island of Patecas (Butcher's Island), annexe of the Aldea Mazagão has no income. In the year 1722, the general, Charles Boone, started a fortification in that which at present is found to be complete and will have 6 or 8 guns, and a garrison of up to 70 *lascarins*.<sup>33</sup>

31. *Sipae* or *Cipai* is a native soldier trained and clothed in uniform in India in the European style. He serves as letter or note bearer. From the Persian *sipāhī* of *aspa* (Sans. *assva*) 'horse'. An Indo-British sepoy. Dalgado, *Glossario*, II, p. 307.

32. *Sobedar* or *Subedar* is a governor of a province or district; a captain. From the Persian *sūbadar* of *subā* 'district'. In Marathi *subhedar* and *subassi* is a Turkish term. In the native army of India the post of a *subedar* corresponds to that of a 'captain'. Dalgado, *Glossario*, II, p. 320.

33. *Lascar* or *Lascarim*: These words are used in two different senses by writers although they have the same meaning. The former meaning 'a native soldier' and the latter 'a native sailor'. The words are derived from the Persian *lashkarī* of *lashkar* 'army'. In Bengal this is

I suppose that the island of Bombay will yield to the Company more or less up to 160,000 xs. and by this income it will be able to arbitrate its value by regulating on the usual ten per cent according to the custom ; but at the same time it should be observed that a greater part of the same income depends on the trade and traffic which at present runs in the same island together with the liberty of conscience that is observed there, etc. *Saldanha (Livro das Monções, No. 94, in princípio)*.

It is evident from the text of the above document that its importance lies not only in its financial aspect, but at the same time the curious statement also offers documental evidence regarding the re-purchase of the island of Bombay by the Portuguese, which the latter were contemplating about half a century after its transfer to the British Crown.

But it was too late for them to earnestly realize the loss of that precious island which undoubtedly is one of the main causes for the decadence of the Portuguese Power in the East. Those wise words of the Viceroy, Antonio Mello e Castro, who parted with it with tears in his eyes saying "*que se acabou a India no mesmo dia em que a Nação Inglesa fizer assento em Bombaim*" seem to have had hardly any effect on the minds of the statesmen of the time, to realize the great political blunder they then committed by transferring it to a power who was already in rivalry with them in trade and conquest. But Bombay was destined in the hands of the British to rule a great part of the vast Continent.

"Three great events" writes Dr. da Cunha, "that have materially contributed to the making of modern Bombay, are the Treaty of Bassein, which destroyed the Marátha Confederacy, the annexation of the Dekkan, and the opening of the Suez Canal, which helped considerably to raise this city to the proud position of the gateway of India." What would have been the position of Bombay to-day, had it been in the possession of its previous occupants?

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used as 'a governor of a city' but actually it means a native soldier, the word being substituted at present by 'cipai' or 'sepoy'. Dalgado, *Glossario*, I, p. 515.

# HISTORY OF COW-PROTECTION IN INDIA. \*

BY L. L. SUNDARA RAM, ESQ., M.A., F.R.ECON.S. (LONDON.)

(Continued from last issue.)

WE may now enter upon that period of Indian history which is replete with instances wherein Muhammadan sovereigns of India who were more liberal than the vast majority of their masses strove their level best towards protecting the cow. Here, I have to make plain the fact in view of the evidence furnished previously, however vindictive the nature of the Muhammadan-conquering masses and certain of their fanatic rulers in killing cows, that we find brilliant efforts made by some of their illustrious sovereigns of India in the cause of cow-protection. These efforts will make us envisage the capabilities of our Muslim neighbours in meeting us at least half way in our efforts to conserve cow life.

To begin with, Babar, the first of the Mughal rulers of India, recognized the importance of cow preservation. We cannot exactly vouch for his capabilities to understand the importance of the bovine species to Indian agriculture. But he is quite explicit about the respect and sufferance of the Hindu reverence towards the cow, which every Muslim inhabitant of India must be capable of. For one thing he never ate beef, but had a partiality towards the flesh of camels. We may read the whole of his *Memoirs* but we cannot find a single passage wherein it is mentioned that Babar ate beef. The first Mughal emperor of India is famous for his descriptive detail and imagery. Several feasts and banquets given by him and his subordinate Wazirs are described to the minutest detail but in not even one instance do we find beef mentioned as being served to the guests. But, it is far from being a surmise when I say that the Muhammadan stock of Afghanistan has a particular partiality towards the flesh of horses and camels. Monserrate mentions† that Timur the ancestor of Babar “held frequent banquets at which the flesh of the horses was served boiled or roast” in preference to other meat. Babar himself mentions quite clearly his relish of camel’s flesh. In the valley of Khesh “a fat *Shuterluck* belonging to the Hazaras was found, brought in and killed. We ate part of its flesh roasted, part of it sun-dried (with the rest boiled in vessels). I never ate such fine-flavoured camels’ flesh; many could not distinguish it from mutton.”‡ This

\* A chapter from the writer’s forthcoming monograph on *Cow Protection in India*.

† *Commentary of Father Monserrate*, Appendix p. xxx. Translated by J. S. Hoyland. Annotated with introduction by S. N. Banerjee, Humphry Milford, 1922.

‡ *Memoirs of Babar*, Vol. I, p. 281. Translated by Leyden and Erskine. Revised by Sir Lucas King, C.S.I., LL.D., F.R.S., Oxford, 1921. *Shuterluk* is a species of camel.

partiality towards camels' flesh is justified by the fact that, as we have already seen in an earlier chapter, the desert Arab was generally habituated to slaughtering camels at sacrifices and banquets.\*

Babar is more explicit as regards his respect towards the cow. In his death-bed advice to his son Humayun he gives vent to fine sentiments worthy of a genuine follower of Islam. Two copies of the document containing the advice are extant at the present day, the one in the Bhopal State Library and the other in the possession of Principal Balkrishna of the Rajaram College, Kolhapur. The latter one seems to be more complete and I quote it in full.†  
 "Secret will of Zahir-ud-Din Mohammad Badashah Ghazi to Prince Nasirud-Din Mohammad Humayun, whom God grant a long life, written for the strength of the kingdom :

"O son, the kingdom of India is full of different religions : praised be God that He bestowed upon thee its sovereignty. It is incumbent on thee to wipe all religious prejudices off the tablet of the heart ; administer justice according to the ways of every religion. Avoid especially the sacrifice of the cow by which thou canst capture the hearts of the peoples of India, and subjects of this country may be bound up with royal obligations.

"Do not ruin the temples and shrines of any community which is obeying the laws of Government. Administer justice in such a manner that the king be pleased with the subjects and the subjects with the king. The cause of Islam can be promoted by the sword of obligations rather than by the sword of tyranny.

"Overlook the dissensions of the Shias and Sunnis, else the weakness of Islam is manifest.

"And let the subjects of different beliefs be harmonised in conformity with the four elements (of which) the human body is harmoniously composed, so that the body of the kingdom may be free from different diseases. The Memoirs of Timur, the master of conjunction (*i.e.* fortune) should always be before thine eye, so that thou mayest become experienced in the affairs of administration."—*1st Jamadi-ul-Awwal, 935 A.H.*

The reigns of Humayun and Sher Shah may well be skipped over as they are not quite so important to our present purpose, and are mainly occupied with defeats, flights, conquests and reconquests, which would mean

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\* *Ante*, chapter on the Muslim Outlook.

† Dr. Syed Mahmud, Ph.D., obtained a photo of the copy preserved in the Bhopal State Library through the courtesy of Nawab Col. Hamid Ullah Khan Sahib and translated it in his article on "Cow-Protection under Muslim Rule"—a Historical Survey, in the *Indian Review* for August 1923, which is published as a pamphlet for free distribution by the Sri Gorakshak Mandal, Bangalore. The Persian original of Dr. Balkrishna's copy will be shortly published in the *Indian Historical Journal*. Its translation is practically broadcast by almost all the newspapers of India in view of the present state of communal tension over the Bakra-Id Festival.

loss of equilibrium in the State. When we come to Akbar we have perhaps as persistent a sovereign in the cause of cow-protection as Asoka.

Akbar's eclecticism and strong leanings towards Hinduism are quite plain even to a superficial reader of history. His broad-mindedness, his catholicity and his openness of mind to receive new impressions were instrumental in bringing about his policy of religious tolerance. Theologians and *Muftis*, logicians and scholars of varying attainments and belonging to different religions and creeds assembled round him in the spacious *Ibadat Khana* or House of Worship at Fatepur Sikri, built in 1575. The *pros* and *cons* of dogmas were carefully hearkened to by this excessively inquisitive monarch, however intricate their logical catechism, however subtle their metaphysical abstractions. His openness of mind was such that different religions claimed in him a proselyte. Monserrate, the Jesuit Missionary, claims that he embraced the path of Jesus of Nazareth, while the Jains equally justify their claims in maintaining the conversion of Jalal-uddin Akbar to the creed of Mahavira. However this may be,—and it is a matter to be decided by scholars,—this much is certain that Akbar had strong leanings towards Zoroastrianism, and more particularly towards Jainism.

Akbar is positive as regards his distaste of flesh. Whether this be due to the Jain influence on him or to an instinctive moral repugnance and sensitiveness to see a brute butchered we cannot ascertain. But this much is plain that his instincts of humanitarianism are as strong as those of any Jain. Take this passage from the *Ain-i-Akbari*:\* “His Majesty has a great disinclination for flesh : and he frequently says, ‘Providence has prepared variety of food for man, but, through ignorance and gluttony, he destroys living creatures, and makes his body a tomb for beasts. If I were not a king, I would leave off eating flesh at once, and now it is my intention to quit it by degrees.’ For some time, he abstained from flesh on Fridays ; then on Sundays ; now on the first day of every solar month, and on Sundays, and on the days of the eclipses of the sun and of the moon, and the day between two Sufyanehs ; † and the Mondays of the month Rejeb, and the festival of the month Teer, together with the whole of the month Fervirdeen (March), and the month in which His Majesty was born, which is Aban (October). And it being ordered that the Sufyaneh should last for as many days as His Majesty was years old, some days in the next month Azer were likewise added ; and now the whole of this last month is Sufyaneh ; and out of his righteousness,

\* Page 56. Translated by Francis Gladwin. I hope to supply references from Blochmann and Jarret, in a future edition of this work, as they are not available to me at present in this part of the *mofussil*.

† That is, if a day intervened between two days that were appointed for abstaining from flesh, that intermediate day became also Sufyaneh.

besides all those, it is still increasing some days every year, and never less than five days."

This is but a significant passage testifying his strong beliefs about the sanctity of animal life. But for his legislation in the cause of cow-protection we have to go elsewhere.

Here I am to note that Akbar remitted several vexatious taxes including taxes on the sale and slaughter of cattle and the one for dressing hides.\* This would mean the relaxation of State control over important transactions which are sure to touch the economics of the State. From very early times of Muhammadan rule in India, we find these taxes are collected vigorously to conserve cattle life. Dr. Syed Mahmud sums up this piece of legislation in the following manner:† "From the very inception of Muslim rule a special tax was imposed on butchers for the slaughter of cows to the extent of twelve 'Jetal' per cow. During the reign of Feroz Shah, butchers complained against this tax and the king abolished it. Details of this taxation are not given in books of history, but its object could only have been the prevention of cow-slaughter. This tax, therefore, continued for two hundred years after the establishment of Muslim rule in India, right up to the time of Feroz Shah Tughlak. Instead of issuing a general order prohibiting cow-slaughter, this was the method adopted by early Muhammadan kings. This tax was called 'Jazri'. At the time of Mohammad Shah Tughlak, beef was not cooked in the royal kitchen, and the king did not take it. Several authors have given detailed description of the royal kitchen, but there is no mention of slaughtering cows. Farhat-ul-Mulk was appointed Governor of Gujarat, and continued in that capacity also during the reign of the next king Mohamed Ghias-ud-Din Tughlak II. Historians state that Farhat-ul-Mulk made various concessions to the Hindus, and did not allow the slaughter of cows. The Hindus wielded great influence during the reign of Sultan Nasir-ud-Din Khushro. This king totally stopped the killing of cows in his territories. It also seems that the Jazri tax which had been discontinued by Feroz Shah Tughlak was re-imposed after his reign, because it is recorded in books of history that Akbar abrogated this tax. Akbar ordered a total prohibition of the killing of cows, and the tax was no longer found necessary and it was probably on that account that it was discontinued."

When we place the above injunctions of Akbar alongside with the attempts of his predecessors, we may not be impressed with this legislation of his who is famous for his partiality towards the cow. As a matter of fact,

\* *Ibid.*, p. 248.

† "Cow-Protection under Muslim Rule"—a Historical Survey, in the *Indian Review* for August 1923.

Akbar had no necessity to protect the cow by means of this paltry and indirect method of legislation. On the other hand, his Cow-Protection policy was broad-based and comprehensive. He was overt in his favour of the Hindu, the Jain and the Zoroastrian creeds. History proves his several concessions to these creeds which were granted in good faith. His partiality towards Jainism was quite marked, and his declarations about using meat as an article of food, quoted above, were quite in consonance with this particular bent of his mind.

We have corroborative evidence that three Jain gurus attended the court of Akbar and ministered unto his mental inquisitiveness in hankering after information about the different religions of the world. Hiravijaya Suri, Vijayasena Suri and Bhanuchandra Upadhyaya are credited to have exercised a wholesome influence upon Akbar, and obtained a *Firman* prohibiting under penalty of capital punishment animal slaughter in general and cow-slaughter in particular.\* This *Firman* is preserved on the walls of a porch to the Adiswara Temple on the Satrunjaya Hills close to Palitana State in the Kathiawad. Dr. Bühler sums up this long inscription in the following manner: † “Hiravijaya (Klatt No. 58, verses 14-24), who was called by Sahi Akabbara (Shah Akbar) to Mevata, and persuaded the emperor in Samvat 1639 (A.D. 1582) to issue an edict forbidding the slaughter of animals for six months, to abolish the confiscation of the property of deceased persons, the *Sujijia* tax, and a *Sulka*; to set free many captives, snared birds and animals; to present Satrunjaya to the Jains; to establish a Jaina library (*Paustakam Bhandagaram*), and to become a saint like king Srenika, who converted the head of the Lumpakas, Meghaji; made many people adherents of the Tapagachchha; caused many temples to be built in Gujarat and other countries; and made many natives of that country, of Malava, and so forth, undertake pilgrimages to Satrunjaya. No. CXVIII commemorates one of these pilgrimages, which was undertaken by Hiravijaya who belonged to the *Sapha* race. He died, according to XIII, of starvation, at Unnatadurga, in Samvat 1652, Bhadrpada Sukla 10, and his *Padukas* were erected in the same year, on Marga-vadi 9, Monday, by Udayakarna of Stambhatirtha (Cambay) and consecrated by Vijayasena. Vijayasena (Klatt No. 59, verses 25-34), who was called by Akabbara (Akbar) to Labhapura (Lahore), received from him great honours, and a *Phuramana* (*Firman*), forbidding the slaughter of cows, bulls and buffalo-cows, to confiscate

\* *Bhandarkar Commemoration*, Vol. pp. 265-276. Article on “The Jain Teachers of Akbar” by V. A. Smith. Bhandarkar Oriental Institute, Poona, 1917.

† *Ibid.*, pp. 272-273. Being not in possession of either Keilhorn's or Bühler's collection of inscriptions I was not able to give the full text of the inscription here. I hope to do so in a second edition of the monograph. The same is summed up by S. N. Banerjee in his introduction to the *Commentary of Father Monserrate*, pp. iv and v.

the property of deceased persons and to make captives in war; who, honoured by the king, the son of Choli-Begam (Choli Vegama), adorned Gujarat. Latest date Samvat 1650."

A similar account has been furnished by a modern writer from mountain temples and historical inscriptions on their porches. Summarizing the series of inscriptions on the temples of the Shatrunjaya Hills which comprise the *Firmans* of Mughal sovereigns of India in their efforts to bring about mutual amity and concord between Hindus and Muhammadans, Mr. G. K. N. writes in the *Bombay Chronicle*: \* "There is first of all the *Firman* of Jellal-ud-Din Muhammad Akbar. It guarantees the Jains the maintenance of their worship and the exercise of their religion and doctrine 'throughout our Empire and dominions'. Something more important follows—that no one can kill an animal on those mountains or temples or below or about them. It is but proper that the Jain should perform his devotions with composure of heart. 'Let no one ever oppose or make objections' to the decree. Let the orders contained in the *Firman* be acted upon and carried out.

"The second edict is from the Emperor Jehangir in similar terms.

"The third *Firman* is from Shahjehan who confirms the preceding documents. Then we have another of the same Emperor granting greater liberty. He emphasizes that every year a new order shall not be demanded but that those whom it concerns shall not swerve from what is here commanded. A further 'world-binding mandate' is issued by another Padishah, one more from the 'Dar-ul-Khilafat', proving that at times the Indian Emperors considered themselves rightful Khalifas. The documents are too interesting to be dismissed with a curt notice.....It must have been an India in those days certainly immune from that fierce acerbity between the Hindus and Musalmans which seems now to usurp their minds to the exclusion of truly national endeavours."

From this evidence it is positively clear that Akbar had very strong ideas about cow-protection from several viewpoints. Firstly, he is instinctively repugnant to partake of flesh from the humanitarian point of view as his declarations about meat-eating and his abstinence from eating flesh would clearly prove. Next to this, his respect for the feelings of his Hindu subjects and his leanings towards the *Ahimsa* principle of Jainism influenced him to order prohibition of cow-slaughter in his dominions. Possibly, he might have had strong notions about the economic relationship of the cow-protection problem to the country's needs.

Akbar's policy is maintained and perpetuated by his successors. Jehangir who is a mixture of extremes, and Aurangzib who is notoriously known to

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\* Quoted in *The Muslim Outlook*, p. 7. April 8, 1926, Lahore.



have done the greatest harm to the progress of Hinduism are famous for their efforts to save the cow's life. The Shatrunjaya Inscriptions mention his *Firman* to protect cow-life which is in complete harmony with that of his father Akbar. \* Further, he is credited with having stopped all slaughter of animals and all manner of hunting on Sundays, to commemorate Akbar's birth-day, and on Thursdays as a token of the Almighty's grace in consecrating him king, on that day. † On this point, Bernier, the French traveller who visited the Mughal court during the years 1656-1668, is more explicit. After referring to the sacredness of the cow in the eyes of the Hindus, Bernier continues: ‡ "It ought likewise to be observed that owing to the great deficiency of pasture land in the *Indies* it is impossible to maintain large numbers of cattle; the whole, therefore, would soon disappear if animal food were eaten in anything like the proportion in which it is consumed in *France* and *England*, and the country would thus remain uncultivated. The heat is so intense, and the ground so parched, during eight months of the year, that the beasts of the field, ready to die of hunger, feed on every kind of filth like so many swine. It was on account of the scarcity of cattle that *Jehan-Guyre*, at the request of the *Brahmins*, issued an edict to forbid the killing of beasts of pasture for a certain number of years."

The reign of Aurangzib is noted for the internecine quarrels among the different principalities dispersed over the length and breadth of the country, the attempts of the Mughal *Padshahi* to subdue them on the one hand, and the civil war that ultimately gave him the reigns of government after a huge flow of blood. The concomitants of war would be loss of life, human and animal. Especially in mediæval warfare the beast played a prominent part. Besides the elephant and the horse the bull played a unique part as a beast of burden. These wars of Aurangzib caused serious loss of animal life, and this has been graphically described by Manucci in his *Storia do Mogor*: § "Instead of verdure all is blank and barren. The country is so entirely desolated and depopulated that neither fire nor light can be found in the course of a three or four days' journey..... There have died in his armies a hundred thousand souls yearly, and of animals, pack oxen, camels, elephants, etc., over three hundred thousand." Commenting upon this phenomenon Bernier points out, || after his reference to Jehangir's prohibition of the

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\* *Ibid.*

† Dr. Syed Mahmud in the *Indian Review* for August 1923 on "Cow-Protection under Muslim Rule"—a Historical Survey.

‡ *Travels in the Mogul Empire*, p. 326. Translated by Archibald Constable. Revised by V. A. Smith, 1914. Oxford, Humphry Milford.

§ *Storia do Mogor*, iv, 252 and 96. Quoted in the *History of Aurangzib*, Vol. V., p. 236, by Jadunath Sarkar, M.A., Calcutta, 1924.

|| *Travels in the Mogul Empire*, pp. 326-327.

slaughter of beasts of pasture, that "not long since they presented a similar petition to *Aureng-Zebe*, offering him a considerable sum of money to ensure his compliance. They argued that the neglected and the ruinous condition of many tracts of country during the last fifty or sixty years was attributable to the paucity and dearness of oxen." According to *Islami Gorakshan*, later Mughal sovereigns of India such as Muhammad Shah and Shah Alam prohibited cow-slaughter.\*

Muhammadian sovereigns of India were famous for their policy of 'give and take' and the appreciation of the Hindu beliefs in the sanctity of the cow. Further, they were fully cognizant of the fact that the solidarity of the State depended upon peace and goodwill between the Hindus and the Muslims. They conceded that cow-slaughter was never a tenet of Islam. To crown all, they prohibited any recrimination on the part of the conqueror Muslims and preached the wholesome gospel of the worth of animal life, in particular of cow-life. If the masses of the Muslim population of India at the present day were made to realize and appreciate this legacy of history which their co-religionists that have gone by have given to posterity, then the cow-protection problem in India would have been completely solved.

Our next glimpse in the cause of cow-protection we get from the inspirational declarations and achievements of Sivaji, who is hailed by the Hindu population of India as an incarnation of God. Sabhasad maintains in his *Siva Chhatrapati* that Shree Sambhu Mahadev declared himself incarnate in the person of Sivaji,† to deliver the Brahman and the cow from the clutches of the Muhammadian population of India.

Sivaji personally justifies this belief. When he was taken against his will to the *Darbar* of the Sultan of Bijapur at the age of twelve to obtain his favours, Sivaji declares : ‡ " We are Hindus and they Yavanas. They are very low—in fact there is none lower,—I feel a loathing to salute them. They commit evil deeds like cow-slaughter. It is wrong to witness any slight on religion and the Brahmans. Cows are slaughtered as we pass by the roads. It pains me and I feel inclined to cut off the head of the offender. In my mind I feel disposed to decapitate the oppressor of the cows but I am helpless as I do not know what my father will think of it." Again, when the Padshah talks of remarrying Sivaji as his first marriage was, as he vouched, a mere play, Sivaji argues according to the *Siva Digvijaya* : § " We are Hindus and the rightful lords of the realm, it is not proper for us to witness

\* P. 41.

† *Siva Chhatrapati* by Krishnaji Anant Sabhasad. Translated from the Maratha *Bakhar* by Surendranath Sen. Calcutta University, 1920, p. 2.

‡ *Chitnis Bakhar*, p. 27. Translated in *Ibid.*, p. 160.

§ P. 111, quoted in *Ibid.*, p. 160.

cow-slaughter and oppression of the Brahmans." Sivaji's later policy and achievements justify this statement of his. But his enthusiasm and sacred duty to protect the Cow and the Brahman never led him to indiscriminately slaughter the Muhammadans even during the height of his military achievements.

At the disintegration of the Mughal, the Vijayanagar and the Maratha empires, we have to stop for a time in our sketch of the history of cow-protection in India. Our sources of information fail us here. The country was immersed throughout the eighteenth and the earlier half of the nineteenth centuries in a series of wars. One by one the empires crumbled. The British had begun to exchange their trade for the sword. Gradually they became masters of India. During this period, no single ruler, Hindu or otherwise, was able to bestow particular attention towards the cow,—at least, our source books fail us here in this respect,—as they were completely absorbed in their attempts to prevent the sword of the conqueror from exterminating their dynasties and escheating their estates. But all the same, the feelings of the Hindus, as ever, were strong in favour of respecting cow-life. The mere suspicion, alleged or actual, that the fat of the cow was used in preparing the cartridges for the Enfield Rifle drove into fury the Hindu Sepoys in the employ of British service, and set into a blaze all the fires of the sentimental clings of the Hindus at the time of the Sepoy Mutiny. This is evidence positive of the staunch beliefs of the Hindus in imputing sanctity to the cow, which always goaded them to constrain the State to see that their wholesome beliefs in this respect were never abrogated, while nothing prejudicial to the cause of cow-protection ever happened through the instrumentality of the State.

In quite recent years Kashmir and Nepal stand prominent in their efforts towards cow-protection. The strange factor to be borne in mind is that Kashmir is predominantly Muhammadan, while Nepal is a comparatively undeveloped State when compared with India proper and is situated in an extremely mountainous zone. Kashmir seems to have been perpetuating her policy towards protecting the cow as propounded by her Meghavahanas and Anantivarmans of yore, as we have seen above. The *Ranvir Danda Vidhi* provides :\*

"Section 219.—Slaughter or murder of a cow or like animal. If any person intentionally kills or slaughters any animal of kine division, either the cow or bull, he will be subjected to punishment. Either of the two kinds of imprisonment the terms of which may be up to ten years can be inflicted and a fine will also be imposed according to circumstances.

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\* Quoted in the Memorial to H. H. the Maharaja of Mysore by the Sree Gorakshak Mandal, Bangalore, praying for cow-protection.

“ Explanation :—The word cow includes *Gonda* or wild cow also.

“ If any person keeps the flesh of any animal referred to in Section 219, in his possession knowing it or having reasons to believe that it is of any such animal, he will be punished. Either of the two kinds of imprisonment the terms of which may be up to one year and a fine up to Rs. 500 will also be imposed according to circumstances.

“ Section 219B.—If any person slaughters or kills any she-buffalo, a fine will be imposed. The amount of the fine can be up to five times the value of the animal (which the Court may fix).

“ Procedure :—The offence under this Section is interferable by Police, unailable, and uncompoundable, and will be tried by a First Class Magistrate.”

Likewise is the case of Nepal. Nurtured in the lap of fervent Buddhism for ages and having imbibed to the core the Aryan partiality towards the cow, the Nepalese are to-day staunch cow-protectors. As Sir Bampfylde Fuller puts it, “ Cow-killing is under its strictest interdict among the Mongolian people of Nepal.” \*

In the State of Jodhpur there is a long-standing order prohibiting the slaughter of cows. In the light of the latest information, even the export of cows, female sheep and she-goats is prohibited.† Again, the Maharaja of Sondur State in the Bellary District declared recently at Davangere that the slaughter of cows would be forbidden in his State, and that old and dry animals in the hands of itinerant butchers, if they happen to pass through his territory, would be liberated at the cost of the State.‡ Both these instances are commendable. Even Provincial Governments of British India are seen to be sympathetic towards the prevention of cow-slaughter. For example, Order No. 1236/955—XIII of the Central Provinces Government, dated 31-5-1922, prohibited the killing of cows in the licensed as well as private slaughter-houses situated within their jurisdiction.

The cow-protection movement in India at the present day is purely one of education and propaganda. Several undesirable elements have cropped up to stop the general progress of cow-protection, such as the Muslim persistency in maintaining the indispensability of cows for sacrificial purposes and the economic arguments of the burden upon the farmer of sterile and aged cows if they are to be fed in their useless old age. The movement at the present day has swelled in volume, while its outlook and breadth of activities have broadened. Propaganda has been carried on an extensive scale. Sterling facts about cow-protection which are capable of lifting up

\* *Studies in Indian Life and Sentiments*, p. 103. Murray (1910).

† Memorial of the Gorakshak Mandali.

‡ *Social Reformer*, p. 392, February 30, 1926.

the screen of prejudice and ignorance have been broadcast. Literature bearing upon the different problems connected with cow-protection in India has been made accessible to the public though on a modest scale. Communal feelings and petty prejudices and provincialism of creed-dogmas have been at present drawing the attention of the cultured who are trying to obliterate them.

Towards this effect propaganda has been extensively carried on. The Cow-Conference has been organized along with the annual sessions of the Indian National Congress. There is a Central Cow-Protection Society for India organized under the kind patronage of Mahatma Gandhi known as "All-India Cow-Preservation League" with its headquarters at Sabarmati. Besides this there are several societies in India \* conducting their operations mainly depending upon their own resources and equipment. The following societies deserve mention :—

The Society for the Prevention of Cruelty to Animals stands out as the oldest humanitarian institution in India. It was started at Madras in the year 1877 by Mr. William Digby, C.I.E., with His Grace the Duke of Buckingham and Chandos as first patron and Lady Grenville as first patroness. All these fifty years the Society has been pushing on its propaganda with unremitting zeal. But the operations of the Society do not limit themselves to the cause of cow-protection alone. On the other hand, the outlook of the Society is very broad and includes all branches of humanitarian work. The Society's inspectors have the powers of the police authorities in booking all classes of people without distinction of status, if ever they are seen red-handed in acts of cruelty to animals. It has seven branches in the Madras Presidency and has the backing of highly influential men in the Presidency.

Next in chronological order is the Islami Gorakshan Office at Sitapur, U.P. The Society is the outcome of the efforts of Mr. Syed Nazir Ahmed Saheb, a prominent Wakil of Sitapur. Born in 1872 and belonging to the Shia sect of the Muslims, Mr. Nazir Ahmed was fully imbued with respect towards the cow and deep feelings of respect towards "Gopalak Sri Krishnaji heartily and sincerely", to quote his nephew's letter to the present writer. His mission is simply to demonstrate that cow-slaughter is in no way a tenet of the Islamic creed. Towards this, he entered upon a career of propaganda preaching to the masses the values of cow-protection. He strove his level best to disseminate correct information about the theological position of the cow in different religions, especially from the Muslim view-point. He published several pamphlets about this subject and permanently established the

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\* All these societies were good enough to appreciate my appeal for information and guidance. I must sincerely acknowledge their sympathy and assistance, but for which my enthusiasm would nearly have been chilled.

Islami Gorakshan Office at Sitapur to carry on propaganda work in the cause of cow-protection.

The Cow-Preservation League, Calcutta, was started in 1922 under the distinguished presidency of the late Sir Asutosh Mukherjee to propagate the cause of cow-protection. It is at present managed by a strong directorate of enthusiasts under the presidency of the Hon'ble Mr. Justice Sir Nalini Ranjan Chatterjee. It has got a network of branches throughout the whole of India, in all sixty societies. This League is noted for its assiduity in collecting information and statistics from the different parts of India. This organization shows clearly what a centralized and co-ordinated institution can accomplish in the cause of doing good to the country.

Shree Ghatkopar Sarvajanika Jivadaya Khata or the Ghatkopar Humanitarian Association of Bombay is doing prominent work in this line in Western India. With a panel of influential Marwari merchants for its promoters, and with an ardent enthusiast in Mr. Manecklal A. Mehta as Secretary, the Association is doing excellent work ever since its inception in 1923. The main object of the Society is the saving of milch cattle from going to the Bombay slaughter-houses besides propaganda work.

Sree Gorakshak Mandali of Bangalore City is a prominent institution in the South. With Dewan Bahadur Rajasabhabhushana Sir K. P. Puttanna Chetty, Kt., C.I.E., and Shah Chimanmal Dongaji for its President and Secretary respectively, the Association has been doing appreciable work in Mysore and the South. The Mandali memorialized the Maharaja of Mysore about issuing a prohibitory order to stop cow-slaughter in his dominions. Much is expected from this.

Besides this, there have been started in India several other propagandist societies of minor importance in name but never in genuine exertion. The prosperity of India lies in societies such as these and the patriots who are helping them.

The history of the *Pinjrapole* and its place in Indian life is noteworthy. That this is an extremely old institution, no one can deny. Tradition and present-day manifestations confirm this. But in view of the paucity of material at our disposal, anything like a comprehensive survey of the history of this charitable institution is a difficult task. In the chapter on the Buddhist attitude we have briefly adverted to the institutions of the *Pinjrapole* and maintained the thesis that Buddhism had her indelible impression upon the conduct and type of the *Pinjrapole*. Dr. D. R. Bhandarkar sums up this feature of the institution in the following brilliant manner :\* “As regards the *Pinjrapoles* or animal hospitals, they are

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\* Carmichael *Lectures on Asoka*, pp. 185-186, Calcutta (1925).

found to this day in Western India. The earliest description of a *Pinjrapole* is that furnished by Hamilton and is of one that was maintained at Surat late in the eighteenth century. Any animal with a broken limb or otherwise disabled is admitted without any regard to the caste or nationality of its master. This suits here excellently. For, when Asoka says that he organized medical treatment for both man and animal, what he means is that in the case of the former he established charitable dispensaries for distributing medicine gratis and in the case of the latter something like a *Pinjrapole*. When again he says that medicinal herbs, roots and fruits were imported and planted where they did not exist previously, we are to understand that he established farms attached to those institutions so that all medicines might be there for ready use. It is indeed curious to find that the custom of giving free medical relief to the diseased man or animal which was in existence in West India in the eighteenth century was prevalent as early as the third century B.C. And what is still further noteworthy is that through the philanthropic activity of Asoka all the drugs then known were made available to the world."

This is from the institutional point of view. On the other side of medical treatment and its history, the Thakore Saheb of Gondal maintains\* that "Veterinary Science seems to have been highly cultivated long before that period (*Mahabharata*). Nala, a remote ancestor of the Pandavas, is described as a most accomplished horse-trainer, and as possessing a thorough knowledge of all matters relating to the horse. Nakula, one of the five Pandavas, was expert in the veterinary science, on which he has written several works, his "*Aswa-Chikitsa*" being still extant. The science of treating elephants, bullocks and other domestic animals was and is still known in India. Some are of opinion that Vagbhata, the celebrated author of "*Ashtangahradya*", flourished at the time of *Mahabharata*, and that he was the family physician of the Pandavas.

"In the time of Buddha (B.C. 543), Indian medicine received the greatest support and stimulus, and surgery was allowed to languish. For Buddha and his followers would not permit the dissection of animals. They put a stop to animal sacrifice in which a knowledge of anatomy was indispensable, and substituted models of dough. Buddha, however, established hospitals for men and beasts all over the country, and the institution of *Pinjrapoles* (Animal Hospitals), so peculiar to India, owes its origin to him."

The institution of the *Pinjrapole* is perpetuated in India to the present day. It is but a common sight in Bombay to see a few cows gathered

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\* *A Short History of Aryan Medical Science*, pp. 188-189.

before a Marwari or Gujarati gentleman's house where are provided ample supplies of grass to these sacred beasts. Pure milk is only to be got at these *Pinjrapoles* \* conducted on a very modest scale and dispersed all over the city. This personal observation of the writer seems to justify the above contentions of Dr. D. R. Bhandarkar. But the *Pinjrapole* does not seem to have been fully developed throughout the country on really efficacious lines. While they seem to be not very popular as their number is quite modest, the development of this institution is fraught with very good results and it is a desirable institution to be fully developed.

I will now close this chapter with a working exposition of the animal hospital of the Jains at Allahabad which shows the amity existing between man and beast in India. Mr. L. Moresby writes in the *Herald of the Golden Age* : † “ In Ahmadabad I visited the Jain Hospital for Animals—a most wonderful and touching place. It is a compound in the midst of the city with trees in it and large sheds where the sick and wounded animals are tended. The Pariah dogs in India are a very painful sight—so lean and starved that their ribs stand out like the ribs of a stranded hulk; so ravenous that they run beside the train as it leaves a station, watching with famished eyes for morsels that some kind hand but seldom throws. Here I saw some lying contentedly with their puppies nestling besides them, and food before them fresh from the great cauldrons in which it is boiled for all the guests tended and cared for as part of our common brotherhood. Beside them was standing a bullock, with shining coat like grey velvet and a cruel scar healing along his flank. Above in the trees the grey monkeys chattered and held out tiny black paws for alms. The goats stood by with their kids, and men and boys went about feeding and tending them, and I have seldom seen a happier place (though indeed there were sights of suffering), because it seemed to re-knit the bond between man and beast and to speak of a debt owed for faithful service, and therefore ungrudgingly paid.”

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\* *Pinjrapole* is used here, as is passed off generally, as a place where cows are gathered either for milking or feeding.

† Vol. XVI. Quoted in *The Jaina Gazette*, Vol. XXI, No. 7, July 1925, pp. 208-209.



# SURYAPRAGNAPTI.

BY DR. R. SHAMA SASTRY, B.A., PH.D., M.R.A.S.

(Continued from Vol. XVIII, No. 1.)

## The Motions of the Moon and the Sun.

THE moon moves and unites 67 times with Abhijit in a Yuga of 5 years.

The sun comes in contact five times with the same star in a Yuga.

The names of the months are :—

1. Śrāvaṇa	...	...	Abhinanda
2. Bhādrapada	...	...	Supratishṭha
3. Āśvayuja	...	...	Vijaya
4. Kārtika	...	...	Prativardhana
5. Mārgaśirsha	...	...	Śrēyān
6. Pushya	...	...	Śiva
7. Māgha	...	...	Śīsira
8. Phālguna	...	...	Haimavān
9. Chaitra	...	...	Vasanta
10. Vaiśākha	...	...	Kusumasambhava
11. Jyēshṭha	...	...	Nidāgha
12. Āshāḍha	...	...	Vanavirodhi.

Years:—

(1) Nakshatra samvatsara = Nakshatra māsas =  $12 \times 27 \frac{21}{87}$  days = 327  
+  $\frac{51}{87}$  days.

(2) Yugasamvatsara = 5 years.  
(cyclic year)

(3) Pramāṇasamvatsara (to be explained later on).

(4) Saturn-year ( " " ).

The first is of 12 kinds, as Śrāvaṇa, Bhādrapada, etc. ; when Jupiter completes the whole circle of constellations once, it is called, a Nakshatra-samvatsara of 12 years.

Lunar year =  $29 \frac{2}{3} \times 12 = 354$  days +  $\frac{12}{3}$  days.

Intercalary lunar year =  $383 + \frac{44}{2}$  days.

Solar year =  $12 \times 30\frac{1}{2} = 366$  days.

Hence once in 30 solar months there will be one intercalary lunar month.

Hence in a yuga of 60 solar months there will be two intercalary lunar months.

Each lunar month contains two parvas.

Hence a lunar year " 24 "

Intercalary year " 26 "

Then the text proceeds with the solution of some problems regarding the particular Ayana and particular diurnal circle in which a desired Parva occurs. If, for example, the question be asked "At what Ayana and what circle at the beginning of a cycle does the first parva attain completion?" the general method of solution is as follows:—

There is here a constant which is the fixed difference between the parva area and the Ayana area. It is 1 circle +  $\frac{4}{67}$  of a circle +  $\frac{9}{31}$  of one-sixty-seventh part of a circle. The reason for this difference will be discussed later on. This constant is multiplied by the number of the desired parva. Then 1 is added to the number denoting Ayanas. If then the moon's Ayana area be greater or complete, then the parva area is deducted from it. The addition is for the purpose of facilitating the subtraction. It indicates an equal number of parvas. If the multiplier be odd number it shows that the parva is in the interior circle; if it be even, then the parva will be in the outer circle.

Now the constant is 1 Ayana + 1 Circle +  $\frac{4}{67}$  of a Circle +  $\frac{9}{31}$  of  $\frac{1}{67}$  of a circle.

Multiply this by one and add 1 to Ayana.

Then the result is  $2 + 1 + \frac{4}{67} + \frac{9}{31}$  of  $\frac{1}{67}$ .

Since the circle with its parts is less than two, Ayana cannot be subtracted from circle. Hence add 2 to circle. It becomes 3. Hence the answer is that the first parva happens in the second Ayana, third internal diurnal circle when  $\frac{4}{67} + \frac{9}{31}$  of  $\frac{1}{67}$  parts of a circle have elapsed. This Ayana is lunar. In the case of lunar Ayanas, the first Ayana in the beginning of a cycle is northern and the second is southern.

Similarly if the parva asked be 2nd, then the constant multiplied by 2 =  $2A + 2C + \frac{8}{67} + \frac{18}{31 \times 67}$ . Then add 1 to Ayana and two to circle. The sum =  $\frac{A}{3} + \frac{C}{4} + \frac{8}{67} + \frac{18}{31 \times 67}$ . Hence the answer is that the 2nd Parva happens in the 3rd Ayana when  $\frac{8}{67} + \frac{18}{67 \times 31}$  parts of a circle have passed in the 4th circle.

Likewise if the 14th parva be asked, then the constant  $\times 14 = 14A + 14C + \frac{56}{67} + \frac{126}{31 \times 67} = 14 + 14 + \frac{60}{67} + \frac{2}{31 \times 67}$ .

Here since 13 circles +  $\frac{18}{67}$  of a circle are = 1 Ayana. Hence adding this one Ayana and also one more as usual and 2 to the circle number the number of Ayanas we get becomes 16, i.e.,  $16 + 3 + \frac{47}{67} + \frac{2}{31 \times 67}$ .

That is the 14th parva happens in the 16th Ayana when  $\frac{47}{67} + \frac{2}{31 \times 67}$  parts of the third circle have passed away.

Likewise for 62nd parva.  $(1 + 1 + \frac{4}{67} + \frac{9}{31 \times 67}) \times 62 = 62 + 62 + \frac{248}{67} + \frac{558}{31 \times 67} = 62 + 65 + \frac{65}{67} + 0 = 62 + 5 \text{ Ayanas} = 67 \text{ Ayanas.}$

Since there is no fraction here, nothing will be added to the Ayana number. The circles also being even whole number, no addition is also made to their number. Hence the circle is external. Accordingly the answer is that the 62nd parva takes place when 67 Ayanas and the next outer circle are completely passed away.

The answers for all parvas are as follows :—

1st Parva happens when 2 Ayanas		+	$\frac{4}{67}$	+	$\frac{9}{31 \times 67}$	of the 3rd circle	
						are passed.	
2nd	"	3	"	+	$\frac{8}{67} + \frac{18}{31 \times 67}$	"	4th "
3rd	"	4	"	+	$\frac{12}{67} + \frac{27}{31 \times 67}$	"	5th "
4th	"	5	"	+	$\frac{17}{67} + \frac{5}{31 \times 67}$	"	6th "
5th	"	6	"	+	$\frac{21}{67} + \frac{14}{31 \times 67}$	"	7th "
6th	"	7	"	+	$\frac{25}{67} + \frac{23}{31 \times 67}$	"	8th "
7th	"	8	"	+	$\frac{30}{67} + \frac{1}{31 \times 67}$	"	9th "
8th	"	9	"	+	$\frac{34}{67} + \frac{10}{31 \times 67}$	"	10th "
9th	"	10	"	+	$\frac{38}{67} + \frac{19}{31 \times 67}$	"	11th "
10th	"	11	"	+	$\frac{42}{67} + \frac{28}{31 \times 67}$	"	12th "
11th	"	12	"	+	$\frac{47}{67} + \frac{6}{31 \times 67}$	"	13th "
12th	"	14	"	+	$\frac{38}{67} + \frac{15}{31 \times 67}$	"	1st "
13th	"	15	"	+	$\frac{42}{67} + \frac{24}{31 \times 67}$	"	2nd "
14th	"	16	"	+	$\frac{47}{67} + \frac{2}{31 \times 67}$	"	3rd "
15th	"	17	"	+	$\frac{51}{67} + \frac{11}{31 \times 67}$	"	4th "

Similarly for the rest.

Now regarding the question which parva is completed in which star, the ancient method is as follows :—

Multiply by the required number of parvas the constant, viz.,  $\frac{67}{124}$ . Then if there be a remainder multiply it by 1830 and subtract from the product 1302, this being the correction for Abhijit (for  $\frac{21}{67}$  is Abhijit area. This multiplied by 62 = 1302 of  $\frac{1}{67}$ th part).

Then the remainder is divided by  $67 \times 62$  and the quotient shows the number of stars passed. The remainder is the part passed in the next star.

The reason for the process is as follows :—

If in 124 parvas 67 sidereal revolutions are performed,  
 then in 1 there will be  $\frac{67}{124}$  "  
 $\frac{67}{124}$  revolutions =  $\frac{67}{124} \times 1830$  stars =  $\frac{915}{62} \times 67 = \frac{61305}{62}$ . De-  
 duct from this 1302 parts of Abhijit. Then what remains is  $\frac{60008}{62}$ . Then

divide this by 67. The quotient is 14; *i.e.*, the 14 stars from Śravaṇa to Pushya are passed. Then there is the remainder  $\frac{1847}{67 \times 62}$  day stars. This multiplied by 30 gives muhūrtas, as  $\frac{55410}{67 \times 62} = 13 + \frac{1408}{67 \times 62} = 13 + \frac{21}{62} + \frac{1}{67}$  muhūrtas; *i.e.*, the 1st parva is completed when  $13 + \frac{21}{62} + \frac{1}{67}$  muhūrtas in Āśleṣha have elapsed.

Likewise for two parvas:  $\frac{67}{124} \times 2 = \frac{67}{62} = 1 + \frac{5}{62}$ , *i.e.*, one revolution +  $\frac{5}{62}$  of a revolution. This divided by  $\frac{1830}{67} = \frac{9150}{67 \times 62}$ . Deduct from this  $\frac{1802}{67}$  of Abhijit.

Then the remainder is  $\frac{7848}{67 \times 62} = \frac{7848}{4154} = 1 + \frac{8694}{4154}$ , *i.e.*, one star, namely Śravaṇa and the remainder. Multiply it by 30 to reduce it to muhūrtas.  $\frac{8694}{4154} \times 30 = 26 + \frac{42}{62} + \frac{2}{67}$  of  $\frac{1}{62}$ , *i.e.*, when so many muhūrtas in Dhanishṭha have passed the 2nd parva is completed.

The results for all the parvas are thus enumerated:—

1st	Parva	...	Serpent, <i>i.e.</i> ,	...	Āśleṣha
2nd	"	...	...	...	Dhanishṭha
3rd	"	...	Aryama	...	Uttaraphalguni
4th	"	...	Abhivṛiddhi	...	Uttarābhādrapada
5th	"	...	...	...	Chitra
6th	"	...	Aśva	...	Aśvini
7th	"	...	Indrāgni	...	Viśākha
8th	"	...	...	...	Rōhiṇi
9th	"	...	...	...	Jyēṣṭha
10th	"	...	...	...	Mṛigaśira
11th	"	...	Viśvēdēvas	...	Uttarāshāḍha
12th	"	...	Aditi	...	Punarvasu
13th	"	...	...	...	Śravaṇa
14th	"	...	Pitṛi	...	Magha
15th	"	...	Aja	...	Pūrvābhādra
16th	"	...	Abhivṛiddhi	...	Uttarābhādra
17th	"	...	Aryama	...	Uttaraphalguni
18th	"	...	...	...	Chitra
19th	"	...	...	...	Aśvini
20th	"	...	...	...	Viśākha
21st	"	...	...	...	Rōhiṇi
22nd	"	...	...	...	Mūla
23rd	"	...	...	...	Ārdra
24th	"	...	...	...	Uttarāshāḍha
25th	"	...	...	...	Pushya
26th	"	...	...	...	Dhanishṭha

27th	Parva	...	Bhaga	...	Pūrvaphalguni
28th	"	...	Aja	...	Pūrvābhādrapada
29th	"	...	Aryama	...	Uttaraphalguni
30th	"	...	...	...	Revati
31st	"	...	...	...	Svāti
32nd	"	...	...	...	Kṛittika
33rd	"	...	Mitra	...	Anūrādhā
34th	"	...	...	...	Rōhiṇi
35th	"	...	...	...	Pūrvāshāḍha
36th	"	...	...	...	Punarvasu
37th	"	...	...	...	Uttarāshāḍha
38th	"	...	Atri	...	Āślesha
39th	"	...	Vasu	...	Dhanishtha
40th	"	...	...	...	Pūrvaphalguni
41st	"	...	...	...	Uttarābhādrapada
42nd	"	...	...	...	Hasta
43rd	"	...	...	...	Aśvini
44th	"	...	...	...	Viśākha
45th	"	...	...	...	Kṛittika
46th	"	...	...	...	Jyēsthā
47th	"	...	...	...	Mṛigaśirah
48th	"	...	...	...	Pūrvāshāḍha
49th	"	...	...	...	Punarvasu
50th	"	...	...	...	Śravaṇa
51st	"	...	...	...	Magha
52nd	"	...	Varuṇa	...	Śatabhishak
53rd	"	...	Bhaga	...	Pūrvaphalguni
54th	"	...	...	...	Uttarābhādra
55th	"	...	...	...	Chitra
56th	"	...	...	...	Aśvini
57th	"	...	...	...	Viśākha
58th	"	...	Agni	...	Kṛittika
59th	"	...	...	...	Mūla
60th	"	...	...	...	Ārdra
61st	"	...	...	...	Uttarāshāḍha
62nd	"	...	...	...	Pushya

Thus in the 1st half of the cycle the Parva stars are enumerated in order.

Similarly for the 2nd half they can be ascertained by employing the method specified above.

### The Sun and the Parvas.

Equally necessary is the knowledge of the method of ascertaining in which Ayana and in which diurnal circle a particular parva (full moon or new moon) occurs.

The method is as follows:—

The number of the parva in question will be multiplied by 15 and one will be added to it. Then if there are any Avamarâtras (lower nights, *i.e.*, the six nights between 354 days of the lunar and 360 days of the Savana year), they will be deducted. Then the remainder will be divided by 183. The quotient represents Ayanas. The remainder, being the number of days, will show the number of diurnal circles and the last of them will be the outer or interior circle in which the parva occurs. In the Uttarâyana, it is the outer circle and in the Dakshinâyana, it is the inner.

Now for example,—the problem in which circle does the sun complete the 1st parva in the cycle is thus solved.

$$1 \times 15 + 1 = 16 \text{ days.}$$

There are no lower nights here, it being less than a year. Hence the answer is that in the beginning of a cycle, the sun completes the 1st parva in the Dakshinâyana in the sixteenth circle from the innermost circle:

Likewise for the 4th Parva.

$$4 \times 15 + 1 = 61 \text{ days.}$$

There being one Avama night for sixty days it will be deducted from it. Hence the number of days = 60.

Hence the 4th parva will be completed in the 60th circle from the innermost in the Dakshinâyana.

Likewise for the 25th Parva.

$$25 \times 15 + 1 = 376 \text{ days. Deduct six Avamas.}$$

$$\therefore 376 - 6 = 370 \text{ days.}$$

Dividing this by 183 we have  $\frac{370}{183} = 2\frac{4}{183}$ ; *i.e.*, two Ayanas completed and in the 3rd Ayana (Dakshina of course) 4th innermost circle, the 25th parva will be completed.

Similarly 124th Parva.

$$124 \times 15 + 1 = 1861. \text{ There being 30 Avamas, they will be deducted.}$$

$$\therefore 1861 - 30 = 1831. \frac{1831}{183} = 10\frac{1}{183}; \text{ i.e., the tenth Ayana (uttara) and the 1st innermost circle.}$$

### The Parvas and the Sun in Union with the Nakshatras.

In order to ascertain the particular star in which the sun completes a particular parva, we proceed as follows: Let  $x$  be the Parva number.

In 124 Parvas the sun completes 5 revolutions.

$$\begin{aligned}
 & \text{" } 1 \text{ " " } 1\frac{5}{24} \text{ " } \\
 & \text{" } x \text{ " " } 1\frac{5}{24} \times x \text{ " } \\
 & = \frac{5x}{124} \times \frac{1830 \text{ (days in a cycle)}}{67 \text{ (stars in a cycle)}} = \frac{5x \times 915}{62 \times 67} \text{ stars.} \\
 & = \frac{4575x}{62 \times 67} \quad \text{Take } x = 1.
 \end{aligned}$$

Deduct from this the parts of Pushya star, it being  $44 \times 62 = 2728$  in 62 Parvas.

∴ The remainder is  $\frac{1847x}{62 \times 67} = \frac{1847}{4154} x$  stars after Pushya. This reduced to Muhūrtas and sixty-secondths of a muhūrta will be equal to  $\frac{1847}{4154} \times 30 = 13 \text{ m.} + \frac{2}{62} + \frac{1}{67}$ , i.e., the 1st parva will be completed in Āślēsha when 13 muhūrtas and  $\frac{2}{62}$  of a muhūrta and one-sixty-sevenths of one-sixty-secondths of a muhūrta have elapsed.

Similarly the 2nd Parva is as follows:— $1\frac{5}{24} \times 2 \times \frac{1830}{67} = \frac{9150}{62 \times 67}$ .

Deduct from this 2728 parts of Pushya.

The remainder is  $\frac{6422}{62 \times 67}$  stars =  $\frac{6422}{4154} = 1\frac{2268}{4154}$  stars. One star = 30 muhūrtas. But the star Āślēsha being of half an area takes only 15 muhūrtas. Hence deducting this we have 15 muhūrtas +  $\frac{2268}{4154}$  stars or  $15 + \frac{68040}{4154}$  muhūrtas =  $15 + 16\frac{1576}{4154} = 31 + \frac{23}{62} + \frac{35}{67}$  muhūrtas. By 30 Magha is completed. Hence the 2nd Parva occurs when  $1 + \frac{23}{62} + \frac{35}{67}$  muhūrtas have elapsed in Pūrvaphalguni.

Similarly the third Parva— $1\frac{5}{24} \times 3 \times \frac{1830}{67} = \frac{15 \times 915}{62 \times 67} = \frac{13725}{4154}$  stars.

Deduct 2728 parts of Pushya from this. The remainder is  $\frac{10997}{4154} = 2\frac{2689}{4154}$  stars.

The two stars Āślēsha and Magha. For Āślēsha only 15 muhūrtas and Magha 30 muhūrtas are gone. Hence there remains 15 m. +  $\frac{2689}{4154} \times 30$  muhūrtas =  $34 + \frac{26}{62} + \frac{2}{67}$  muhūrtas. Of these, by 30 muhūrtas Pūrvaphalguni is passed. Hence the 3rd Parva (new moon) is completed when  $4 + \frac{26}{62} + \frac{2}{67}$  muhūrtas in Uttaraphalguni are passed.

Similarly for the rest. Or there is also another ancient process of ascertaining the parva stars of the sun. Here 33 muhūrtas +  $\frac{2}{62}$  of a muhūrta +  $\frac{34}{67}$  of 62ndths of a muhūrta is a constant. This multiplied by the required number of parvas minus the corrections for Pushya and other stars will give the required star.

The constant is obtained thus:—

In 124 parvas there are 5 sun's revolutions.

$$\begin{aligned}
 & \text{" } 1 \text{ " " } 1\frac{5}{24} \text{ " } \\
 & = 1\frac{5}{24} \times 1830 = \frac{4575}{4154} \text{ stars} = \frac{137250}{4154} \\
 & \text{Muhūrtas} = 33 + \frac{2}{62} + \frac{34}{67} \text{ Muhūrtas.}
 \end{aligned}$$

The corrections for Pushya and other stars are as follows:—

i.  $19 + \frac{4}{6} \frac{3}{2} + \frac{3}{6} \frac{3}{7}$  for Pushya.

This also is obtained as follows:—

When a cycle is completed,  $\frac{2}{6} \frac{3}{7}$  parts of Pushya are passed, leaving behind  $\frac{4}{6} \frac{4}{7}$  parts, which in Muhūrtas is equal to  $\frac{4 \cdot 4 \times 30}{6 \cdot 7} = \frac{1 \cdot 3 \cdot 20}{6 \cdot 7} = 19 + \frac{4}{6} \frac{3}{2} + \frac{3}{6} \frac{3}{7}$  Muhūrtas.

ii. Then from Āślēsha up to Uttaraphalguni star 139 muhūrtas are to be deducted.

iii. Then up to Viśākha 259.

iv. Then up to Uttarāshāḍha 409.

In all these deductions the deduction for Pushya should be made separately.

v. Then for Abhijit  $4 + \frac{6}{6} \frac{6}{7} + \frac{3}{6} \frac{2}{7}$  muhūrtas are to be deducted.

vi. Then up to Uttarābhādrapada 569.

vii. Then up to Rohiṇi 719.

viii. Then up to Punarvasu 809.

Now according to this method, the first three parva stars can be ascertained thus:—

$$(33 + \frac{2}{6} \frac{2}{2} + \frac{3}{6} \frac{4}{7}) \times 1 = 33 + \frac{2}{6} \frac{2}{2} + \frac{3}{6} \frac{4}{7}.$$

Deduct from this the correction for Pushya  $19 + \frac{4}{6} \frac{3}{2} + \frac{3}{6} \frac{3}{7}$ .

The remainder is  $13 + \frac{2}{6} \frac{1}{2} + \frac{1}{6} \frac{1}{7}$ , i.e., the sun completes the parva when so much in Āślēsha has elapsed.

Likewise for 2nd Parva;

$$(33 + \frac{2}{6} \frac{2}{2} + \frac{3}{6} \frac{4}{7}) \times 2 = 66 + \frac{4}{6} \frac{2}{2} + \frac{6}{6} \frac{8}{7}.$$

Making deduction for Pushya there remains

$$(66 + \frac{4}{6} \frac{2}{2} + \frac{6}{6} \frac{8}{7}) - (19 + \frac{4}{6} \frac{3}{2} + \frac{3}{6} \frac{3}{7}) = 46 + \frac{2}{6} \frac{2}{2} + \frac{3}{6} \frac{5}{7}.$$

Giving 15 for Āślēsha and 30 for Magha, we have  $1 + \frac{2}{6} \frac{2}{2} + \frac{3}{6} \frac{5}{7}$ , i.e., the parva is completed when so much has elapsed in Pūrvaphalguni.

Similarly for 3rd Parva:— $(33 + 2 + 34) \times 3 = 99 + 7 + 35$  (denominator being omitted). Deduction for Pushya as above. Remainder is  $69 + 26 + 2$ . Then 15 for Āślēsha, 30 for Magha, 30 Pūrvaphalguni; there remains  $4 + 26 + 2$ , i.e., when so much has elapsed in Uttaraphalguni, the 3rd parva is completed.

The several stars in which the sun completes the parvas in the 1st half of a cycle are thus enumerated in order by ancient sages.

1st Parva	...	...	Āślēsha
2nd „	...	...	Pūrvaphalguni
3rd „	...	...	Uttaraphalguni
4th „	...	...	„



5th Parva	...	...	Hasta
6th "	...	...	Chitra
7th "	...	...	Viśākha
8th "	...	...	Anūrādha
9th "	...	...	Jyēshṭha
10th "	...	...	Mūla
11th "	...	...	Pūrvāshāḍha
12th "	...	...	Uttarāshāḍha
13th "	...	...	Śravaṇa
14th "	...	...	Dhanishṭha
15th "	...	...	Pūrvābhādrapada
16th "	...	...	Uttarābhādrapada
17th "	...	...	"
18th "	...	...	Revati
19th "	...	...	Aśvini
20th "	...	...	Kṛittika
21st "	...	...	Rohiṇi
22nd "	...	...	Mṛigaśīrah
23rd "	...	...	Ādra
24th "	...	...	Punarvasu
25th "	...	...	Pushya
26th "	...	...	Magha
27th "	...	...	Pūrvaphalguni
28th "	...	...	Uttaraphalguni
29th "	...	...	"
30th "	...	...	Chitra
31st "	...	...	Svāti
32nd "	...	...	Viśākha
33rd "	...	...	Anūrādha
34th "	...	...	Jyeshṭha
35th "	...	...	Pūrvāshāḍha
36th "	...	...	Uttarāshāḍha
37th "	...	...	"
38th "	...	...	Śravaṇa
39th "	...	...	Dhanishṭha
40th "	...	...	Pūrvābhādrapada
41st "	...	...	Uttarābhādrapada
42nd "	...	...	"
43rd "	...	...	Aśvini
44th "	...	...	Bharani
45th "	...	...	Kṛittika

46th Parva	...	...	Rohiṇi
47th "	...	...	Mṛigaśīrah
48th "	...	...	Punarvasu
49th "	...	...	"
50th "	...	...	Pushya
51st "	...	...	Magha
52nd "	...	...	Pūrvaphalguni
53rd "	...	...	Uttaraphalguni
54th "	...	...	Hasta
55th "	...	...	Chitra
56th "	...	...	Svāti
57th "	...	...	Viśākha
58th "	...	...	Anūrādhā
59th "	...	...	Mūla
60th "	...	...	Pūrvāṣāḍha
61st "	...	...	Uttarāṣāḍha
62nd "	...	...	Abhijit.

Likewise following the Karaṇa process shown above the parva stars in the 2nd half of the cycle can be ascertained.

We are now going to explain the Karaṇa verses of ancient teachers as to which parva attains completion on the last day of the cycle and after the expiration of how many muhūrtas :—

The verses in prakrit run as follows :—

When one remains after the number of parvas is divided by 4, it is termed Kalyoja; when two is the remainder, it is termed Dvāparayugma. When three, Treta; when four Kṛtayugma. In Kalyoja 93 is the addition; in Dvāpara, 62; in Tretaiya it is 31; but in Kṛta there is no addition. When the number of parvas with the above additions is divided by 124, the remainder is reduced to half and multiplied by 30. The product is then divided by 62. The quotient is the number of muhūrtas elapsed with the parva.

This is the meaning of the verses :—

Now as to how many muhūrtas will have elapsed in the last day of the year before or with the completion of the first parva in a cycle, we proceed as follows :—

The parva is one. And one is a Kalyoja number. Hence we add 93 (parvas) to it. The sum becomes 94. We divide it by 124, (it being the number of parvas in a cycle). The numerator being less than the denominator, there will be no quotient. Anyhow we reduce the numerator to half, *i.e.*, 47, and multiply it by 30. The product is  $47 \times 30 = 1410$ ; and divide it by 62.

$$\therefore \frac{1410}{62} = 22 \frac{28}{31} \text{ muhūrtas.}$$

That is, the first parva is completed when  $22 \frac{2}{3} \frac{8}{1}$  muhūrtas of the last day have elapsed.

ii. Likewise for 2nd parva :

2 is Dvāpara. Hence  $2 + 62 = 64$ .

$\frac{64}{124}$  does not give a quotient (integer).

Hence halving (the numerator), we get 32.

$32 \times \frac{3}{2} = \frac{48}{1} = 15 \frac{1}{3} \frac{5}{1}$  i.e., the 2nd parva is completed when

$15 \frac{1}{3} \frac{5}{1}$  muhūrtas have elapsed on the last day.

Similarly for the 3rd parva :—

We take 3. It is Treta. Hence 31 is added.

The sum = 34. This is not divisible by 124. Hence halving it and multiplying it by 30 and dividing the product we get  $17 \times \frac{3}{2} = 17 \times \frac{1}{3} \frac{5}{1} = \frac{25}{3} \frac{5}{1} = 8 \frac{7}{3} \frac{1}{1}$ , i.e., the 3rd parva is completed when  $8 \frac{7}{3} \frac{1}{1}$  muhūrtas have expired on the last day.

For the 4th parva, we proceed similarly :—

Take 4. Add nothing. It is not divisible by 124. Halving it we have 2. Multiply by 30. We get 60. Dividing it by 62 we get  $\frac{3}{1} \frac{0}{1}$  of a day when the parva is completed.

For 124th parva.

$\frac{124}{4}$  gives no remainder. Hence it is Kṛitayugma. Hence no addition. 124 divided by 124 gives no remainder. Hence we conclude that the last parva attains completion with the whole day.

#### Pramana Samvatsara.

This is of 5 kinds: Nakshatra (sidereal), Ritu (seasonal), Chāndra (lunar), Āditya (solar) and intercalary lunar.

The sidereal and lunar years have already been treated of. The Ritu and Āditya will be explained :—

2 Ghaṭikas	=	1 Muhūrta
30 Muhūrtas	=	1 Day and night
15 Days	=	1 Paksha
2 Pakshas	=	1 Month
12 Months	=	1 Year.

The year of 360 days and nights is a Ritu-samvatsara. This has two more names, Karma-samvatsara and Sāvana-samvatsara ; karma = work (laukika vyavahāra). Hence that year which is prominently observed by workmen is so called. This is said of it.

Karma month has no fraction and facilitates work, worldly transaction ; the rest have fractions and so in usage it is difficult to understand.

Sāvana means engagement in work. Hence that year which is chiefly agreeable to work is sāvana year.

The year of 360 days is called Karma year and also Sāvana year.

Similarly the time taken by the rainy and other seasons for completion of this one revolution is called solar year. It is, however, usual to assign 60 days to each of the rainy and other seasons. Still really each of them has 61 days. Hence the solar year contains 366 days.

The Karma or Sāvana year	...	...	360 days
The lunar	...	...	$354\frac{12}{62}$ "
The Nakshatra year	...	...	$327\frac{51}{67}$ "
The intercalary lunar year	...	...	$383\frac{44}{62}$ "

In a Yuga there are three ordinary lunar years of  $354\frac{12}{62}$  days and two intercalary years. Hence in a Yuga there are 62 lunar months, 67 nakshatra months.

### The Measure of Solar and other Months.

A solar year is = 366 days.

i. Hence one solar month =  $\frac{366}{12} = 30\frac{1}{2}$  days.

ii. A Karma-samvatsara is = 360 days.

Hence 1 Karma month =  $\frac{360}{12} = 30$  days.

iii. A lunar year is =  $354\frac{12}{62}$  days.

Hence one lunar month is =  $\frac{354\frac{12}{62}}{12} = 29\frac{32}{62}$  days.

iv. A Nakshatra year is =  $327\frac{51}{67}$  days.

Hence one Nakshatra month is =  $\frac{327\frac{51}{67}}{12} = 27\frac{21}{67}$  days.

v. An Intercalary lunar year is =  $383\frac{44}{62}$  days.

Hence one intercalary month =  $\frac{383\frac{44}{62}}{12} = 31\frac{121}{124}$  days.

(1) In a yuga or cycle of 5 years or 1830 days  
there are 60 Solar months.

(2) " " 61 Sāvana months.

(3) " " 62 Lunar months.

(4) " " 67 Nakshatra months.

(5) " " 57 Intercalary months,

7 days,  $11\frac{23}{62}$  muhūrtas.

For an intercalary month =  $31\frac{121}{124}$  days.

Hence  $\frac{1830 \text{ days}}{31\frac{121}{124}} = \frac{226920}{8965}$  days =

57 months, 7 days,  $11\frac{23}{62}$  muhūrtas.

## A HINDU SHRINE IN CHINA.

BY K. RAMA VARMA RAJA, ESQ., B.A., M.R.A.S.

WE are told in the *Devi-Bhāgavata Purāṇa*, that there exists (or existed then) in China a celebrated holy shrine of the goddess *Nīla-Sarasvatī* which is worth visiting (“तथा नीलसरस्वत्याः स्थानं चीनेषु विश्रुतम्”—VII—38—13). This passage occurs in a context wherein the Primæval Supreme Goddess is supposed to mention all the important centres of her worship in different forms to her faithful devotee, the mountain deity of the Himalayas, standing in obeisance before her. The goddess *Nīla-Sarasvatī* may be identified with *Tāra*, who is addressed as mother, ‘*Nīla-Sarasvatī*’, in the opening verse of ‘*Tārāśataka*’ in ‘*Nīla-tantra*’ (*Bṛihat-Stōtra Ratnākara*, pp. 181 and 182, Nirnayasagara Press, Bombay). *Tāra* is again an important and well-known form or manifestation of the supreme goddess, and her figure is found also among the Buddhist sculptures of the Northern (Mahāyāna) school in China, Japan and Tibet along with several other familiar forms—Kubera, Maitreya, Manjusri, Kwan-yin, Vajrapani, etc. The author’s preface to *The Gods of Northern Buddhism* concludes with a formal dedication to the goddess Sarasvatī and with a sincere prayer to her for inspiration of her consort Manjusri (the God of Wisdom or of Speech) “to draw his sword of wisdom and ‘cleave the clouds of ignorance’ so that in time the West may come to a clearer understanding of the East.” Kubera and Maitreya, as they appear in the Buddhist and Hindu mythologies, have been referred to in my paper published in *The Mythic Society’s Quarterly Journal* for July 1926, Memorial Number, (Vol. XVII, No. 1, p. 28); and I have tried elsewhere to identify Kwan-yin, ‘the Goddess of Mercy’ with the goddess ‘*Kanyā-Cumārī*’\* of the Cape

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\* The above title is the appellation of the benign virgin goddess worshipped in the well-known Hindu temple at Cape Comorin, both of which—the temple as well as the place—are therefore called after this divinity. This compound word is made up of two nouns *Kanyā* and *Cumārī*, each of which means ‘a maiden’ or ‘a virgin’ and therefore repeats the same idea. This duplication or bilingualism is met with in the sacred formulas also. For example, Nagesa Bhatta, in the concluding portion of his commentary on the “*Sapta Sati*” *Stotra* quotes two Vedic *mantras*, one from *Samavidhi Brahmana* and the other (a *gayatrī*) from *Yajurveda*, in both of which this combination occurs; in the first as *Kanyam....Cumarinim* and in the second as *Kanyam Kumarini* but offers no explanation for this repetition of the idea by means of synonyms. It is perhaps a *Tantraic* and mystic combination. The goddess is also referred to simply as ‘*Kanyā*’ (and possibly as *Cumārī* also) in the sacred literature, and is further known in tradition as a patron deity of sea-voyage, being offered, and receiving, homage and presents from the sea-faring people rounding the rocky cape for securing safe passage.

The temple is situated at the south end of the Malabar Coast and Ghats. Somewhere about this must have been the ancient mount Potalaka or Potala of the Buddhist period and fame ‘where

Comorin temple (*Ernakulam College Magazine*, July 1919). In the Buddhist countries the Hindu deities appear in the Buddhist garbs and *vice versa*, and both these sects may have the same deities adored in their own respective ways: yet, they are now mutually so jealous and exclusive that they are seldom known to associate with each other and participate in common religious observances. No orthodox Hindu would now acknowledge the sanctity of the Buddhist shrines of Tāra or any other deity. Hence it appears to be rather strange and curious that a temple in China is expressly mentioned as a principal holy centre of Hindu worship and not as one transplanted from India.

It will not certainly be out of place to note here other objects of Hindu worship recently discovered in China; *viz.*, sacred phallic stones which are the centres of worship naturally resorted to by married women in the hope of becoming pregnant, but now more generally by harlots for success or prosperity in their trade or business. For more detailed information on this subject reference may be made to the original Article (41) 'Man', May 1913, which is my authority. The writer is inclined to trace the cult back to 'the

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the Buddhist spirit or saint Avalokitaswara worshipped by Northern Buddhist in Tibet, China and Japan was supposed sometimes to take his abode'. R. C. Dutt, giving Houen Tsang's account (*Ancient India*, Book IV, Ch. VII, p. 534, People's Edn.) places this celebrated hill to the east of the Malabar range, while Col. Waddell, following the same Buddhist pilgrim as guide, "on the sea-shore of Southern India on which stood the chief shrine and earthly seat of *Avalokita*" and which (the hill) might therefore probably be no other than the 'Red Bluffs' at Varkallai, a holy place of hoary lore in Travancore. This ancient Indian Potala Hill shrine as depicted then was, according to Col. Waddell, the original or pattern of the Potala Palace-shrine built on the Red Hill at Lhasa in 1644 A.D. for the then Grand Lama of Tibet who then posed as the Priest-king-God, and earthly incarnation of the Buddhist 'God of Mercy,' *Avalokita*. The Potala Pillars and academies of Tibet and China are regarded to be of the same origin. The Potala model is said to have been carried further to the Island of Pluto or Potala of the Chusan Archipelago which contains "a celebrated shrine of the Goddess of Mercy or Kwan-yin, the female form of *Avalokita* who is especially regarded as the saviour of the sailors from perils at sea" (Col. Waddell's paper on the "Grand Lamas of Tibet", *Journal of the Royal Asiatic Society*, pp. 69-86, January 1910). Now the similarity, in name as well as in character, between the benign Hindu Goddess 'Kanya' and Kwan-yin the Buddhist Goddess of Mercy, seems to be clear and real, and the next question is which of these is the parent and which the offspring; and the following points and arguments may decide it satisfactorily.

Northern Buddhism, *i.e.*, of Tibet, China and Japan, has been shown to contain ingredients of native and other Indian cults and in Tibet especially it is defined as "a priestly mixture of Sivaite mysticism (including of course Tantric Saktism), magic and Indo-Tibetan demonolatry overlaid by a thin varnish of Mahāyāna Buddhism. And to the present day, Lamaism still retains this character (Waddell cited by Prof. A. S. Geden as authority in his *Studies in Eastern Religions*, p. 316). If the Potala model had found its way into Tibet, China, Japan and other eastern countries of the northern Buddhists, it seems to be equally possible that the Kanya-worship too might have spread likewise, and the celebrated Buddhist shrines of Kwan-yin, distributed over the same wide area, might have been built and consecrated after the model of the Kanya temple at Cape Comorin. And I submit this conjecture, for correction and further enlightenment, to scholars like Col. Waddell, and await their criticism.

pre-Christian times, that is to say, prior to the second or the third century of the Christian Era;’ and concludes that originally these stones were the emblems of the principle of fecundity, but have subsequently become degraded to their present status of “the Harlot’s or Bad Woman’s Stone”.

“Prof. Takakusu describes in *The Young East* the Indian deities introduced into Japan. They are: Mahakala, Sarasvati, Lakshmi, Kubera, Ganesa, Kumbhira (a Yaksha), Varuna, Indra-Sakra, Brahma, Rudra, Narayana, Hayagrīva, Achala, Bhairava, Durga, Uma, Dakini, Hariti, Agni, Skanda, Yama, Gomukha, etc. The names and often the character and functions of the deities have been changed in Japan” (*Modern Review*, December 1925, p. 704). It has also been proved by the ancient monuments and inscriptions that Indians had migrated to Further India and the Malaya Archipelago even before the Buddhist propaganda reached those parts and had established there Brahmanical religion and Hindu culture. Out of this arose the great temples of Siva, Vishnu and other Hindu deities in the principal places in Siam, Cambodia, Java, etc., which are visible even to-day. Further India is said to have received its Indian colony from Orissa\* or further north, and the islands of Indonesia from the Coromandel Coast†. Buddhism reached there and existed peacefully along with its rival religion and culture. Ceylon too might have received early contingents of Indian missions of the Hindus and the Buddhists.

Yet, no explicit mention has been met with in our Puranic or other sacred literature of any shrine or place of pilgrimage in these parts which the Indian Hindus are recommended to visit. So the Puranic passage quoted at the outset is unique for its direct mention of a Hindu shrine of worship and pilgrimage outside India (proper), which is at once important, original, independent and complete in itself, that is, which was not one transplanted or copied from India. But it existed in a Buddhist country—China; and it may be pointed out again that the Brahmanical and Buddhist schools in their early days lived side by side (both here and abroad) in mutual toleration, respect and brotherhood (as the different Hindu sects or the several Christian denominations *do now*). The open rupture and irreconcilable schism between them took place only when the latter took up an anti-Vedic attitude and defended it by open refutation of Vedic authority. Originally the two systems sprang up from the two Vedic roots—*Karmakanda* and *Jnana-kanda*—and grew for a while on parallel lines—*Karmaic* and *Aupanishadaic*—and then began to diverge and finally separated never to meet again. They represented originally two different or divergent

\* Mr. Gauranganatha Banerji’s monograph on “*India as known to the Ancient World*”.

† Mr. O. C. Gangoly’s paper on “*The Cult of Agastya*” published in *The Mythic Society’s Quarterly Journal* for January 1927.

courses of conduct—ritualism and spirituality—of which the former had to observe and adopt certain social distinctions and conventions for its maintenance which (these distinctions and conventions) became obnoxious to the latter which maintained absolute equality and philosophical or rationalistic truth in all matters alike. One of such essential conventions was the Vedic authority which was questioned and openly pronounced to be untenable. Violent split was now unavoidable and followed eventually resulting in expulsion of Buddhism from India and disappearance of Hinduism abroad. In the Puranic age, we presume, there was no irreconcilable schism. A Buddhist shrine might have been a holy place of worship to the Hindus and *vice versa*. To prove this proposition we may make an impartial and disinterested reference to the modern Buddha Gaya controversy without committing ourselves to any view regarding the rights of either party to it. Both the parties—the Buddhists as well as the Hindus—admit now that Gaya was, at one time and another, their common centre of worship and pilgrimage. Benares or Varanasi where Buddha began to preach his new doctrines was also likewise a holy place to both. This seems to have been the state of the Hindu-Buddhist relationship in the age of the Puranas.

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## CAPITULATION OF CHITRADURGA.

BY S. SRIKANTA SASTRI, ESQ., M.A.

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THE formidable fort of Chitradurga had been in the hands of Beydar Paleyagars—the Medakere Nayaks—from the time of final disruption of the Hindu Empire of Vijayanagara. The successors of Rama Raya held a nominal suzerainty over the domains while the Nayaks and Paleyagars held the real power all over the country. To mention a few—Nayaks of Madura, Medakere Nayaks of Chitaldurg, Wodeyars of Mysore, Paleyagars of Harapanahalli, Belur, Keladi, Ikkeri, Sante Bennur, Bellary, Chennapatna, Chikkamagalur, Devanahalli, Tarikere, Magadi, etc. Many of them claimed to be viceroys of the Vijayanagara Emperor. Thus Chitra Nayaka—Founder of Chitradurga—was authorized to build the fort by Krishna Deva Raya, while the Keladi Chiefs came into prominence under the same ruler and his younger brother Achyuta Raya. Raja Wodeyar of Mysore had his conquests confirmed by Venkatapati Raya at Chandragiri. Though for all practical purposes these chiefs were independent, yet they owed a nominal allegiance to the defunct Empire of Vijayanagara.

Chitradurga—called also Chintankal and Chinmaladri—had been of strategic importance from the days of the Hoysalas. In Vijayanagara times it was the seat of a viceroyalty and a special mint to coin Durgi pagodas—so called after the Durga—had been established. The Nayaks continued to issue the same type long after the Empire had fallen. The Nayaks were always at war with the neighbouring chiefs especially those of Keladi and Harapanahalli. I hope to deal elsewhere with the relationships of these chiefs which fill an important blank in the history of Mysore before the advent of Hyder and the English.

Vijayanagar had left in its wake those powerful baronages which carried on family-feuds from generation to generation with increasing bitterness and animosity till the dominance of the Rajas of Mysore and above all the conquest—lust of that remarkable historical personage Hyder put an end to all of them—a process which had its completion by the advent of the English.

I do not propose to go into the history of Hyder's conquests of other parts of the country, nor to the previous history of Chitradurg itself but will confine myself to the history of the actual capture of the fort. The main authority I rely on is a Bakhar in my possession—written by one yogyadharaka Bhimajipant in Vilambi, soon after the fort had fallen. It is in Kannada

with a great admixture of Maharashtra words and addressed to the Peshwa Srimanta Maharaj Sri Madhava Rao. The chronicle depicts in glowing terms the happy state of the country before the conquest, all the diplomacy Hyder employed and the prowess of the defenders.

Hyder in 1763 had put an end to the powerful Palayapat of Bednur which had been in the hands of the Queen Regent Virammaji. *The Keladi Nripa Vijaya* ends the story of Keladi with the pathetic words "Siva Bhaktara Samsthana Samapti". Hyder had been aided in this campaign by Medakere Nayak himself who thought he would end the family-feud with Keladi by foreign help. Unfortunately for him, his whilom associate proved to be his enemy. In 1770 Medakere Nayak had allied himself with the Mahrattas when Madhava Rao had raided all the country under Hyder's domination, up to the fort of Nijagal near Nelamangala which was besieged. Madhava Rao was in despair as even after a siege of three months the fort had resisted all onslaughts. At this crisis Medakere Nayak, by his matchless prowess, scaled the fort and secured victory for the Peshwa. Hyder could not forget his defeat and bided his time.

After taking Chikkaballapura, Gutti and other chieftainships, he contemplated the destruction of Chitradurg. But the fort being impregnable, he hit upon a plan to entice the chief out of the fort. He sent a letter to the effect that he was anxious for a private consultation. Medakere Nayak had sent his assistance to Hyder in his campaign against Bankapura and against Madhava Rao at Hanavatti. The Bednur Samsthana also fell because of his help. When Hyder had besieged Gutti which had been captured by Morari Rao Ghorpade, the chief had sent him help. Hyder now promised in return for all these services to give him the country as far as Sira and cancel all arrears of tribute if he would only meet him at Hiriyr. This letter was despatched by the hands of a Duffedar Jah Sudha with two elephants and Arab horses as presents.

The chief deliberated on the course of action in private. He could see through Hyder's scheme as well as anybody. His brother Parasuramappa advised caution and prudence and suggested that Hyder's plan should be exposed by diplomatic exchange of messages instead of entrusting the safety of the Nayak's person to the tender mercies of the conqueror. Next day in the open Durbar, before the assembled people the Nayak represented the state of affairs and asked for their advice. Sarvottama Rao said that Hyder had been annoyed at the help rendered by the Nayak to Madhava Rao when he took Nijagal, Savantadurg, Huttaridurg and at the capture of Narayana Pattana, Nugehalli, Hagalevadi and Banavara. But Hyder being too powerful and not easily put off, he advised the chief to send some excuse for not being able to attend personally. Therefore the Nayak wrote to Hyder that he too

was anxious to meet Hyder, yet it was not possible because of his ill-health. He sent two Vakils, Lakshmana Rao and Sarvabhauma Rao, to explain matters personally with a present of two elephants and four horses.

The message reached Hyder in his lashkar at Sira. He rose to the occasion and replied: "If the chief is not well, let him take rest for three or four days. I am sending a clerk to report progress." This clerk of Hyder was given quarters at Chitradurg and reported faithfully all that took place within the fort. Hyder then returned to Srirangapatna and sent Khandani Savars to levy the annual tribute. When the chief was about to hand over the money, a rumour was spread about at the instigation of Hyder himself that he had died of Benu Phani. The tribute was consequently stopped. The clerk in Chitradurg wrote about it to Hyder at Hosur who returned instantly with all his forces and encamped at Turuvekere. From thence he sent his cousin Mohiyuddin Sahib to the assistance of Muttoda Halappa Nayak, to capture the cattle of Chitradurg at Budihal. He sent his Savars again for the delayed tribute and when he received it he expressed his intense joy at the progress in the health of the Nayak, and ordered sweets to be distributed and canon fired in his honour. "I hope," he said to the vakils, "that the Nayak is now well enough to come and meet me. Is it true that a huge quantity of gun-powder, bullets and rockets are being manufactured in the fort?" They replied that the fort being beset on all sides by hostile chieftainships of Bedanur, Harapanahalli, Rayadurga, Nijagal and Tarikere, there had been built up a huge store of war materials ready to hand in case of urgency and that there was no need to manufacture fresh material. Next Hyder inquired as to the water supply and strength of the fort. The vakils said that the water would last for twelve years even if no rain fell and that the fort was impregnable. Meanwhile Halappa Naik of Muttod with the assistance of Mohiyuddin Sahib captured the cattle at Musavana Kanive Ghat. The ryots ran up to the fort and complained to the Nayak. Medakere Nayak was furious and sent four thousand horse to recapture the cattle. The force arrested the marauders in the west, under the Sirdars Kutubdin Khan, Salbat Khan, Venkoji Jigdhall and Lakshmana Rao Jigdhall. In the south the retreat was cut off by Bakshi Chenna Mallaya. There was no way to the east. In the north Janardhana Singh and others waited around their king. Thus surrounded on all sides the Mysore forces grew desperate and rushed north. The skirmish continued for five hours. Mohiyuddin Sahib was captured and imprisoned and there was great rejoicing in the fort.

Hyder was once again defeated but his resourcefulness did not fail him. His aims were now firstly, to free Mohiyuddin Sahib and secondly, to deprive the Nayak of Mahratta help. Diwan Purnaiyya advised him to

rouse up the chiefs of Harapanahalli and Rayadurg who were always at feud with Chitaldurg. When the resources of the Nayak were directed against them, Hyder could easily capture the fort. Hyder, thereupon, wrote to Basappa Nayak of Harapanahalli and Krishnappa Nayak of Rayadurg to meet him at Sira. Next he wrote to Medakere Nayak thus. "While Mohiyuddin Sahib was at Budihal, Halappa Nayak came to him and said, 'my cattle have been captured by Chitradurg forces. I want your help to capture my own cattle.' Mohiyuddin Sahib, it appears, rendered assistance without my knowledge. I can never forget the great help you have rendered me in the past. I request you to send back my cousin." Medakere Nayak after deliberation sent back the prisoner with all honour.

Hyder now encamped at Ratnagiri and sent a peremptory note for a meeting. If the Nayak himself could not come, he should at least send at once his son and heir Bharmappa Nayak and his own brother Parasuramappa as hostages or war would be declared. The Nayak refused the ignominious offer and at once prepared to resist. He sent the Dalavays of the frontiers to their respective forts at once and imprisoned the clerk of Hyder at Chitaldurg. He wrote to Poona for an assistance of fifty thousand horse. Molkalmuru, Kanakuppe, Dodderi, Bilichodu, Basavanakote, Mayikonda, Anagi, Davanagere, Holalkere, Ramagiri, Hosadurga, Gudikote, Horamale, Hiriur—all these forts were to be prepared for a desperate resistance. He wrote to the various chiefs of Kadapa, Karnul, Adavani, Kanakagiri and Havanur to send him help. The defence of various Batheris of Chitaldurg was placed under able officers and an account was taken of the provisions and ammunition. The various Batheris were: (1) Ranamandala, (2) Panchakanive Gudda, (3) Nellikai Siddappa Gudda, (4) Madana Gudda, (5) Mukti Sivalaya, (6) Vidumbeswara Gudda, (7) Savanta Gudda; over the Hill (1) Lalgudda, (2) Jagina Maradi, (3) Patte Darwaz, (4) Hebbulikal, (5) Nagara Suttu,\* (6) Vanake Gandhi Darwaz, and (7) Bairappana Kal. The line of defence was constituted as follows:—From Hebbulikal to Vadavalappana Gudda, from the Muraghi Matha to Tamara Katte, from Rangavvana Kanive to Gonur Kanive, from Devappana Kanive to Hingaldhal, from Siddheswara Kanive to Motalada Kanive. Near the water tank, Kadamari Kallappa Nayak was stationed. In the north near Sante-Bagilu, Aliya Huchhappa Nayak and Sahib Jadhe Bharmappa Nayak and in the east near the Sira Darwaz there was Bhai Parasuramappa Nayak. In the south near Lal Gad Bhau Medakere Nayak. Outside the town from the city to Govindana Katte, Hamir Sahib, Sivaprasad, Dhana Singh, Rama Singh and Lakshmana Singh held the defences.

Next Medakere Nayak gave free permission to the weak, infirm and old, to women and children to leave the fort and take refuge elsewhere ere the

invading army surrounded them and rendered all egress impossible. But the people showed splendid loyalty and refused to leave their sovereign. The Nayak was greatly pleased and there was general rejoicing. Hyder once again sent his vakils for a definite reply. "The bullet is the only answer," came back the spirited response.

The Mysore army now marched at once from Ratnagiri and encamped on the banks of the Vedavati. From thence the vast camp extended as far as Hebbulikall, Cholagatti Gudda, Muraghi Matha and Buddhivantana Maradi in the south. Hyder took up his telescope to view the defences of the city and sent a small force to the fort-gates to test the range of the enemy's cannon.

The siege began on Ashadha Suddha Dasami of Hevilambi Samvatsara. Harapananalli forces encamped at Murghi Matha while the Rayadurg army was at Buddhivantana Maradi. Hyder between the two surrounded the fort with his army and tried to starve the garrison into submission. Near every Darwaza—Fathe Darwaza in the east near Venkata Rama temple, in the south Sira Darwaza, and Laladakote Darwaza near Buddhivantana Maradi—Sirdars were stationed to prevent outside help. Hyder once again sent a message to the Nayak to the effect that if the chief would meet him in person and pay the cost of the expedition—six lakhs of varahas—he would go back to Srirangapatna. The Nayak replied to the vakils of Hyder, Kadapa Subba Rao and Manavalli Srinivasa Rao : "The Nawab, in return for the help I rendered even against my own friends Madhava Rao and Murari Rao at Bankapur, Anavatti and Nagar, is assisting my enemies, the chiefs of Harapanahalli and Rayadurg. He has looted Hosadurga, Janakallu and maltreated the ryots. Now he has come with the evil intention of destroying us by guile. Therefore our meeting place will be the battle-ground alone. You said that he would destroy the fort in a couple of days. Let him try. This fort is not made of wax. Victory lies in the lap of God. If you win I wish you joy of the victory."

Next morning the fusillade began. Hyder's guns, however, were pointed either too high in which case the shot fell over the hill or too low striking the moat. But in one place—Govindana Kattu—there was no moat. Hyder made a surprise attack at the place but was foiled by the desperate resistance of the defenders. Thus two months passed by. Hyder now determined to make an attack on the water reservoir and thus compel submission. A night attack was made at the Vanake Kandi Darwaza, which would have been successful but for the resourcefulness of a woman—so runs the story. She had been there to fetch a pail of water where she noticed some of the enemy making an entry by a hole in the wall. Instantly, with heroic fortitude and fearlessness, she seized a huge rolling-pin (*vanake*) and smote at their heads

as they tried to enter. Meanwhile the rest of the army had applied scaling ladders and by the light of numerous rockets tried to enter the forts. The besieged now mustered strong and repulsed them, on which an attack was made on Phalguneswara Khilla. There the Sirdars Rama Singh, Lakshmana Singh and Sivaprasad vowed that they would compel the invaders to retreat or die in the attempt. Rushing upon the enemy they captured the standard planted at Siriyappana Kal. Hyder was furious and commanded Krishnappa Nayak of Rayadurg to scale the fort at Laladagudda where there was no moat. But the defenders made a sudden sally and routed him. Two thousand soldiers of Rayadurg were surprised by the Nayak's forces which had come behind them by a secret path. Thus the retreat was cut off, many perished and others were granted quarter. Hyder was foiled once more.

Another month passed by without any serious incidents. By this time, a message from Poona to the Nayak fell into the hands of Hyder. The Peshwa encouraged Medakere Nayak to persist in his defence and he was sending Sirdar Gopala Hari with sixty thousand horse for his assistance. Hyder thereupon wrote to the Nayak, "I came here only to test your prowess and not in enmity. If now at least you pay me nine lakhs and send hostages, I will go away." He contemplated bribing the Mahratta Sirdar with the money to be neutral and taking the fort at his own sweet pleasure.

Medakere Nayak had now grown tired of waiting for help from Poona. Nearly seven months had passed by without any message. Therefore he thought he could make peace now and take revenge on a future occasion. His brother Parasuramappa gladly consented to go as hostage. There were only six lakhs of varahas in the treasury. On his word of honour, Hyder promised to raise the siege if the six lakhs were paid then and the remainder a few days later. The money was duly paid and Parasuramappa prepared to go as hostage. But this time fresh messages came from Poona. Sirdar Gopala Hari and Vakil Purushottama Pant with fifty thousand horse, twelve guns, and five thousand rockets had been sent to capture Hyder alive and send him on to Poona. The Mahratta army was encamped at Kapota Gudda on the banks of the Krishna. Therefore Parasuramappa went back into the fort and Hyder's vakils were dismissed peremptorily. The soldiers from Adoni and Kanakagiri returned to their homes. Muttoda was besieged and Halappa Nayak had to flee. Hyder, however, engaged Gopala Hari in battle and made peace with the Peshwa by paying ten lakhs and sent the Sirdar back.

Medakere Nayak heard that two lakhs of varahas were being sent to • Srirangapatna and determined to capture the money. Hyder's sepoys however heard of the design and fleeing to Harihar sent for Hyder's help. Tippu was sent at once with twenty thousand horse to chase the Nayak

back to the fort and if possible to capture him. Warned by Hanumanta Gowda of Habanur, however, Medakere Nayak managed to slip back into the fort closely followed by Tippu who, however, could do nothing.

Foiled once again, Hyder adopted the policy of isolation and creating dissension within. No help was possible from Poona or from the neighbouring chiefs. Moreover there were a number of Muslims within the fort who, when properly handled, would prove extremely helpful. Parasurama Bhau must be cut off by placing twenty thousand horse near the Tungabhadra to oppose him. Many deserted the Nayak lured by the love of lucre. Hyder tried to frighten the garrison by continuous fusillade for two days and scaling the fort. The Nayak personally superintended the defences and encouraged the soldiers by his own example. Boiling oil and *ganji* were poured on the besiegers, huge boulders were thrown from the top. This attempt to capture the fort also failed.

Hyder now sent a pious Kazi to Ashraf Khan in the fort and they spoke to Ahmadvan and Kazi Jumla Sahib : " Hitherto we have served the Kaffirs. Now the champion of our own faith has come to our relief. More than this, how can a petty Paleyagar reward us adequately ? If you join Hyder you will be rewarded well here as well as in Heaven. If you are willing to become Kaffirs you are at liberty to do so." The Muslim leaders consulted among themselves and on Moharram day while going to the tank outside the fort at Mullapur, were received by Hyder and agreed to betray their master. Thus all the Muslims proved traitors. By their insinuations many Mahrattas and Beydars proved disloyal. Even then the Nayak did not give up hope. For three months the siege continued.

On Magha Bahula Bidige, Hyder once more made an attack on the water-reservoir. But the attempt was foiled by Sirdars Balaji Pant and Tammaji who died in battle. At the same time a mine was dug under the moat at Rangayyana Bagilu. While the enemy was entering the mine, the besieged dug a counter mine under the enemy and blew them up.

The only weak spot in the defence was at Hebbulikal—a secret which unfortunately had been known to some of the traitors. Twelve hundred sepoys came by this secret path and surprised the garrison. The Nayak heard that invaders were entering everywhere and could not be checked. At this crisis, the Muslims and people of Hurupkal remained passive. The Nayak felt that the end was at hand. Next morning, he crowned Bharmappa Nayak, and calling upon his followers to follow him in death as in life, he donned saffron-robcs and throwing wide open the fort gates, was soon lost in the ocean of invading army.

Colonel Wilks gives the following account of the capture of Chitradurg, which differs in several important respects from the foregoing account :—

“ Poligar of Chitaldurg (called Chitrigul) influenced by the assurances of his agent at Poona that the first military officer of state (Hurry Pant Parkia) would invade Mysoor, did not follow Hyder in his campaign against Nizam Ali and Peshwa, the son of Sevai Madhava Rao Narayana Rao and helping Raghoba. . . . Hyder’s formidable army marched from Gutti to Chitaldurg and rejecting the submissive officers of the unfortunate chief to atone for the error by a large fine sat down before the place in the month of July. The siege continued for three months with more perseverance than military skill on the side of Hyder and on the part of the besieged with a mixture of heedless enthusiasm and head-long valour characteristic of the Beydar tribe. A temple dedicated to Kali was erected on the top of the Durg. On every Monday the Beydars made a religious sortie. This after a few repetitions was as regularly known in the camp of the besiegers as in the fort. Everything was known except the exact point of attack and notwithstanding all advantages of preparation on the part of the besiegers, the Beydars never once returned without penetrating into the trenches and carrying off a certain number of heads to offer at the shrine of Kali. After the fall of the place, the heads were found ranged in rows of small pyramids in regular order in front of the temple of the Goddess to the amount of about two thousand. . . .

“ A composition was at length arrived at by which Hyder professed to forgive the past and accepted as a pledge of future obedience thirteen lakhs of Pagodas of which five in wrought plate had already been paid, when intelligence arrived that ministerial commander-in-chief Hurry Pant was approaching from Poona with an army rated at 62,000 horse. . . . Hyder determined to put to a severe and immediate proof the professed allegiance of the Poligar. The whole transaction was probably a snare. He destroyed his batteries and trenches and summoned the Poligar to attend his standard against Hurry Pant. If fortune should declare in favour of the Mahrattas, it is obvious that obedience would be fatal to all the hopes of the Poligar and if Hyder should prevail to obey or disobey would leave only a choice of evils, namely, to pay the remainder of the treasure or to stand the siege. To obey presented a chance of good and in consequence of this reasoning, which has been circumstantially stated to me by one of his descendants, he promised—but evaded assistance. . . . (Retreat of Hurry Pant).

“ These arrangements being completed about the close of the year (1777) and himself with the main army, sat down a second time before Chitaldurg. . . . The Poligar had a number of Mohammadans in his service, formed into a corps regularly armed of about 3,000 men whom Hyder found means to corrupt through the medium of their spiritual instructor, a holy and unsuspected hermit. (I have seen and conversed with this holy personage whose service on this occasion was liberally rewarded by Hyder.) When the



Poligar discovered he was betrayed. . . . he ascended a palanquin of state and ordered himself to be carried to Hyder's camp and threw himself at the mercy of the victor in the beginning of March 1779. The plunder. . . amounted to no more than five lakhs of Rupees. The whole family was of course secured and sent as prisoners to Seringpatam."

In the Bakhar, no mention is made at all of the Nayak's willingness to pay a fine and atone for his error before the siege began. It was Hyder who began real hostilities by cattle-lifting. According to Wilks the Maharatta contingent consisted of 62,000 horse. But the Bakhar says that fifty thousand horse, five thousand rockets and twelve guns had been despatched. The circumstances of Hari Pant's desertion have been glossed over by the Mahratta chronicler in a way more creditable to the Mahrattas than facts would warrant, neither is there any mention of the fact that Hyder called upon the Nayak to help him against Hari Pant—an incident which Wilks tells us "has been circumstantially stated to me by one of his descendants". Hyder, says Wilks, demanded thirteen lakhs of pagodas and that already five had been paid when the news arrived of Hari Pant. The chronicle however tells us that he demanded only nine lakhs and the treasury contained only six lakhs which were paid at once and the remainder promised at a future date. "The plunder that accrued to Hyder after the fall of the fort," says Wilks, "including cash, jewels and personal ornaments of women amounted to no more than five lakhs of Rupees." Colonel Wilks also tells us that Medakere Nayak surrendered to Hyder and that his family was imprisoned at Srirangapatna. The Bakhar however says that only the Nayak's fame, prowess, charity and courage remained on earth and the Raja Sahib's relatives, Parasuramappa, Sahib Jadhe Bharmappa Nayak, Dodda Medakere Nayak and others, returned to the fort, though sorely wounded and lived happily.

Hyder was immensely impressed by the attachment the Nayak inspired in the minds of his subjects. "No severity of military execution could restrain persons of each sex and every age from risking their lives with the constancy and exaltation of martyrs, for the purpose of carrying to the besieged such supplies as an incessant succession of individuals could convey . . . .Hyder saw the stern stuff the people were made of when judiciously handled and trained would make excellent soldiers. He, therefore, swept off 20,000 of the population, organized the young men into military bands called Chelas, which were greatly helpful to Tippu." The noble independence and heroic exploits of the heroes of the siege are even now celebrated and cherished by the people of Chitaldurg.

## ESTIMATION OF FORCES ON BOTH SIDES.

*A. Hyder's Army.*—One lakh.

1. Cavalry 37,000	{ 5,000 Private Contribution 32,000 Sarkar Horse
2. Nivulla Bar Sepoys 54,000	{ 10,000 Black 9,000 Yellow 10,000 Babbari 5,000 Green 20,000 Red
3. Sappers and Miners (Kamati)	8,000

*B. Medakere Nayak's Army.*—50,000

1. Cavalry 10,000	{ 3,000 Private Contribution 7,000 Nayak's Horse
2. Foot 29,500	{ 9,800 from the Gadis 3,000 Munition men 1,600 Sappers and Miners 700 Saragavis.
3. Bar Sepoys	5,500
4. Karnatic Horse	5,000

The following list of various coinages in the Toshakhana at Chitaldurg will be of some interest to the numismatists :—

*A. Gold Coins.*—

Gabaru	Jat Mahal
Mohar	Darwadi
Matali	Pralayakaveri Honnu
Siva Rai Honnu	Pralagatti       ,,
Badshaha   ,,	Papa Nayaka   ,,
Sannagiri   ,,	Adavani       ,,
Achyuta Rai,,	Tadapatre     ,,
Deva Rai    ,,	Pade           ,,
Rama Rai    ,,	Nisani         ,,

*B. Silver Coins.*—

Riala—10 lakhs; Asara—17 lakhs; Chauri—10 lakhs.

# THE MAURYAN INVASION OF THE TAMILAKAM.

BY SOMA SUNDARA DESIKAR, ESQ.

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IN a short note contributed to the *Quarterly Journal of the Mythic Society* (Vol. XVI, No. 4) on the Mauryan invasion of the Tamil land, Mr. K. A. Nilakanta Sāstri of the Srī Meenākshi College, Chidambaram, concludes his note saying that 'the persistent reference to cutting through mountain passes and making a passage for the chariots of the invaders (the Vamba Mauryas) is, however, not now susceptible of any cogent explanation.' To have a clear idea of this cryptic line, we have to go back to the origin of the story itself. In the beginnings of this century Dr. S. Krishnasamy Ayyangar while controverting the eighth or ninth century theory of Bishop Caldwell on the 'Augustan Age of Tamil Literature', fixed the second century as the probable date with sufficient authority following in the wake of the late lamented V. Kanakasabai Pillai. In 1913 Pandit M. Raghava Ayyangar of the Madras University Tamil Lexicon Committee read an essay on the life of Çéran Çengüṭṭüvan at the Madura Tamil Sangam Anniversary Celebrations in the first instance, and then developed the subject and published it in book form. He devoted chapter XII of the book to the determination of the age of the Çera Emperor and incidentally brought to the notice of the public the Mauryan invasion of the South and fixed the fifth century as the Augustan Age. Dr. S. K. Ayyangar in one of his University lectures (1918, January & February) examined this theory and then putting up his ideas in book form, writes that Raghava Ayyangar, passing in rapid review the late Mr. Kanakasabai's conclusion in regard to the matter, lays down his main position somewhat as follows:—

“ It is well known that among the poets that constituted the Sangam, Kapilar, Paranaṇṇar, Nakkīraṇṇar, Māmūlanāṇṇar, and Sāttanāṇṇar took a prominent place. Among these, Māmūlanāṇṇar appears from certain poems included in the '*Ahaṇāṇūru*' to have been contemporary with Chola Karikāla, Çeralāthan, Kaḷvar Kōmāṇ Pulli; from this source also appears clearly that he was one who has travelled much in the various parts of the Tamil country and in countries north of it. This poet is taken to be contemporary with Çengüṭṭüvan Çera, as he refers, in Aham 251 to a war between the Mauryas and the chief of Mohur, which is taken to stand for the chief Paḷayan Māraṇ, who is said elsewhere to have fought against the Çera. Quoting from Aham 265, he refers Māmūlanāṇṇar to a time subsequent to the destruction of Pāṭalīputra to which he sees a definite reference in a passage quoted. This is the first and in fact the strongest argument of his thesis for ascribing Çengüṭṭüvan to the fifth century A.D.; but he

arrives at this result by a series of arguments which seems to me to find no justification in history. He interprets the expression in the passage quoted as referring to the destruction of Pātaliputra by the Ganges, whereas in actual fact it could mean no more than the disappearance of the great wealth that the Nandas collected in Pātaliputra in the Ganges. This might well have been brought about by the Nandas themselves throwing it into the river rather than letting it fall into the hands of their enemies, in the revolution that subverted their dynasty. Starting from his peculiar interpretation of the passage, he postulates the destruction of Pātaliputra by the floods of the Ganges and finds the period of such destruction in the time intervening the visits of the two Chinese travellers to India, namely Fa Hian in the beginning of the fifth century and Hieun Tsang in the second quarter of the seventh century A.D. He further equates the Mauryas who had invaded the territory of Paḷayan Māran, perhaps in a previous generation, with the army of the Gupta king, Samudra Gupta. He finds support for this in the mention of the Mantaraja who is taken to be "a king of Kerala" and the same as Mandaram Ćēral. The rest of his reasoning in the whole chapter is of the same character and minor importance."

The learned doctor after fully discussing the subject concluded (the chapter on chronology—Tamil literature in his *Beginnings of the South Indian History* wherefrom the above quotation was taken) thus:—

"The equation of Vamba Mauryar with the army of invasion under Samudra Gupta : it has already been pointed out that the interpretation of the quotation regarding the Nandas is wrong altogether, and that it is so proved by a similar passage in lines 4 and 5 of poem 251 of Aham ; but *there are a number of references which carry the invasion of Mauryas up to Mohur of Paḷayan Māran*. In one of these passages, at any rate, the Pandit tries to establish the contemporaneity of this invasion with the Paḷayan Māran, which, from the text, is untenable. The term Mohūr is used in the passage to stand for the chieftain of Mohur not necessarily Paḷayan Māran. *That reference and the various other references to the Mauryas in Māmūlanār, as well as their cutting their way through rocks in their march southwards, all of them do refer possibly to a great southward invasion of the Mauryas, a newly established dynasty*. We know, now, beyond doubt since the discovery of the new edict of Asoka at Maski in the Nizam's dominions, that Asoka's territory extended right down to the frontier of Mysore within the boundaries of which other edicts were discovered years ago. We know of no wars excepting the famous Kalinga wars that Asoka carried on for purposes of conquest. Chandragupta not having had the time to do it, the further conquest of

territories not included within his empire, but included within that of his grandson, historians ascribed to Chandragupta's son Bindusāra, the father of Asoka, who himself held the viceroyalty of the southern frontiers with his capital at Videsa. *The conquest of the South by the Mauryas must have therefore been made by either Bindusāra the king or by the Viceroy-prince, his son.* The term Vadukar used in this connection by the Tamils is a general designation for all northerners, and indicates the various references before us, and onward move southwards of a certain northern tribe, of which we get perhaps the final glimpse in the movements of the Pallavas till they come into occupation of Kanchi and the extension of their power at least as far south as Trichinopoly and Kumbakonam. All the passages of Māmūlanār, referring to these incidents, refer to them as past occurrences and not as contemporary events. This interpretation of the passages relating to northerners agrees very well with the claim of certain Tamil kings who had won victories over the Aryan army, which attribute is given specifically to the Pandian Nedumçelijan whose name figures in the *Chilappathikaram*. *Such a general movement against the north could on general considerations be postulated only of the period of confusion that followed the decline of Maurya power in the north and the rise to the imperial position afterwards, of the Andras and the Andra Brittyas in succession.* The fifth century is hardly the century in which we get anything like a glimpse of such a great movement of people."

This and an article in the *Journal of the Asiatic Society* entitled "Kosar of Tamil Literature" (October 1923) was probably the authority for the statement by Dr. Barnett in the *Cambridge History of India* that "from the reference of the poets to them it would seem that they once made an unsuccessful attack on Mogur and found allies in the Vamba Mauryas or Bastard Mauryas, possibly a branch of the Konkani Mauryas".

On reading the above statement, Mr. K. G. Sesha Iyer of Trivandrum wrote to the *Journal of the Mythic Society* (Vol. XIV, page 375) controverting those statements and said Kosars were never the advance guard of the Mauryas but were the friends of the Mogur chieftain. The last issue of Mr. Sesha Ayyar's article was "who were the Vamba Moriar and did they invade South India?". After elaborately discussing the matter, taking particularly the stanzas in question, he came to the conclusion that the reading "Moriar" is incorrect and it ought to be "Oriar" according to the variant reading found in the *Puranānūru* (Lyric 175); if it is considered that the reading is Moriar, then, they ought to be imperial Mauryas and concluded as follows:—

“Did these people, whether Moriar or Oriar, actually come to South India? It is clear their objective was South India; but whether as a matter of fact they reached South India we cannot definitely say from the materials available. The relevant poem in this connection is *Ahanānūru* 281. For their southward march, the poem says the Moriar crossed the mountain, sending the Vadukar as an advance guard or, perhaps, opposed by the Vadukar. *Vadukar Mūnnuṇa* which is the expression occurring in the poem may bear either of these two meanings; but perhaps the former is preferable. Like the Moriar, the Vadukar too are described as Vamba Vadukar, Aham 375: and they were obviously a ferocious people, as their frequent description *Katanai Vadukar*, Vadukar fierce as dogs, would show (Aham 107, 381). If they came as the vanguard of the Moriar army, they sustained an ignominious and crushing defeat at the hands of the Chola Perum Ḍenni (Aham 375); and we do not hear any conquest or occupation of the Tamil land by the Moriyar. Perhaps for some reason or other the Moriyar never entered South India though the language of Aham 281 (Ten ricai matiram mūnnia varavirku)\* undoubtedly shows that was the point towards which their advance was originally directed.

On reading this article Mr. Nilakanta Sāstri wrote to say that the reading Moriyar has been established but *the reference to cutting through mountain passes and making a passage for the chariot of the invaders (vin poru nedum kudai yiyerer mariyar, ṇon ṇunai tikiri, tiri tara-k-kuraitta) could not be cogently explained. (The italics all along are mine.)*

Mr. Sesha Ayyar in his learned article contends that even though the reading of Moriyar is established they never entered the South or Tamilakam. I shall show that he is correct in saying that the Mauryas never entered South India. The odes where this information is recorded are three in number (Nos. 69, 251 and 281) and run as follows:—

Āi nalan tholainda mēniyu māmalar-t-  
 Takai vana-p-piḷanda kaṇṇum vakai yila  
 Vaṇṇam vādiya variyu nōkki  
 Yāḷa lānriṇi niyé uridini  
 Nīda linbam vaiki mai varach-  
 Sai poru-t-tiṇavarāki-p-pullilai-p-  
 Parā arai nelli yam puli-t-tiraḷ kāi  
 Kāna mada marai-k-kaṇa niraī kavaram  
 Vēni latta mēnnā dēmuṇṇu  
 Vinporu nedu varai yiyarér Mōriyar

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\* தென்றிசை மாதிற முன்னிய வரவிற்கு.

Pon punai tikiri tiritara-k-kuṛaitta  
 Varai Iṛan dakanṇanarāyinum enaiyadūu  
 Nīdalar vāḷi tōḷi yāḍian  
 Madamayi loḷitta pīli vārndu tañ  
 Ḷilai māṇ valviṇ chuṇṇi-p-palamā  
 Nambudai-k-kaiya-raraṇṇala nūri  
 Nankalam tarū-um-vayavar perumakan  
 Ḷūdar maṇi-p-perumbūṇ āi kānattu-t-  
 Talainā ḷalari nārunin  
 Nalar mulai yāka-t-tinṇuyin maṇandai.\*

—69 *Parankorṇanār*.

The maid soothes her lady who was pining on the inordinate delay of her lord that went in search of gold (property). A free translation of the ode will run thus:—O Lady! be soothed! Do not pine, please, at the loss of the colour of the body, at the eyes that were radiant like lilies, nor at the stoppage of writings on the body; be brave; as you are the only favourite, he would not tarry longer (than is necessary) forgetting the pleasures he enjoyed with you, though he—your lord who is able to present you with brilliant ornament by destroying the fortifications guarded by men with strong bows

\* ஆய் நலந் தொலைந்த மேனியு மாமலர்த்  
 தகைவனப் பிழந்த கண்ணும் வகையில  
 வண்ணம் வாடிய வரியு நோக்கி  
 யாழ லான்றிசின் நீயேயுரிதினி  
 னீத லின்பம் வெஃகி மேவரச்  
 செய் பொருட்டிறவராகிப் புல்லிலைப்  
 பரா அரை நெல்லி யம் புளித் திரள் காய்  
 கான மட மரைக் கண நிரை கவரும்  
 வேனி லத்த மென்னு தேழுற்று  
 விற்பொரு நெடு வரை யியறேர் மோரியர்  
 பொன் புனை திகிரி திரிதரக் குறைத்த  
 வரை யிரந் தகன்றனராயினு மெனையதூஉ  
 நீடலர் வாழி தோழி யாடியன்  
 மடமயி லொழித்த லீலி வார்ந்து தஞ்  
 சிலை மாண் வல்விற் சுற்றிப் பலமா  
 ணம்புடைக் கைய ரரண்பல நூறி  
 நன்கலந்த ஸூவும் வயவர் பெருமகன்  
 சுடர் மணிப் பெரும்பூணு அய்கானத்துத்  
 தலைநாளாலரி நானுநின்  
 னலர் முலை யாகத் தின்றுயின் மறந்தே.

and arrows that are adorned with the feathers of peacocks—has passed in search of gold that mountain that has stopped the further rolling of the wheel of the golden chariot of the Moriyas who rule the mountain that tower the sky (Himalayas).

Tūdum chenrana tōlum cheṛṛu  
 Mōti yonṇutar-p-paśalaiyu māyum  
 Viṅḷai nehila-ch-cha ai-ch-chellalodu  
 Nām padar kūrū marūndūyar ketpi  
 Nandan verukkai yeydinu maṛṛavaṭ  
 Taṅgalar vāḷi tōḷi vel kodi-t-  
 Tunai kālanna punai tér-k-kōṣar  
 Ton mūtālat-t-tarum paṇai-p-potiyi  
 Linnicai mūrasaṅ kadippidittirangat  
 Temmūnai chidaitta nānrai mōkūr  
 Paṇiādamaiya pakai talai vanda  
 Makeḷu tānai vamba mōriyar  
 Punai ter nēmi yurīḷiya kuṛaitta  
 Vilangu veḷḷaruviya varai vā yumbar  
 Māṣil veṅkoṭ-ṭaṇṇal yānai  
 Viḷaiyu-ṭ-ṭappiya varungkēḷ vayappuli  
 Mānila neliya kutti-p-pūkalodu  
 Kāppil vaikum tēkkamil ṇōlai  
 Nirambā niḷidai-p-pōki  
 Arambo ḷavvaḷai nilai nēkiḷn dōrē.\*

—251 *Māmūlanār*.

\* தூதுஞ்சென்றன தோளுஞ் செற்று  
 மோதி யொண்ணுதற் பசலையு மாயும்  
 வீங்கிகழை நெகிழ்ச் சாஅய்ச் செல்லலோடு  
 நாம்படர் கூரு மருந்துயர் கேட்பி  
 னந்தன் வெறுக்கை யெய்தினு மற்றவட்  
 டங்கலர் வாழி தோழி வெல்கொடித்  
 துணை காலன்ன புனதேர்க் கோசர்  
 தொன் மூதாலத் தரும்பணைப் பொதியி  
 லின்னிரை முரசங் கடிப்பிடித் திரங்கத்  
 தெம்முனை சிதைத்த ஞான்றை மோகூர்  
 பணியாதமைய பகைதலை வந்த  
 மாகெழு தானை வம்ப மோரியர்  
 புனதேர் நேமி யுருளிய குறைத்த  
 விலங்கு வெள்ளருவிய வரைவாயும்பர்



This is an ode by the maid to her lady on her sorrow on the departure of her lover. O lady-bird ! Calm yourself, footmen have been despatched to your lord, who has gone to the other side of the mountain—that has streams with transparent waters which stopped the further march and turned back the running of the ornamented cars of the Vamba (unstable) Moriya who came with a large army intent on war and who was enjoying the pleasures of your company in the wild forest where male elephants with huge tusks soothe the she-elephants and if he hears the sufferings we are undergoing by the loss of the colour of the body and the brilliancy of the eyes, he would not tarry even for a minute though he is to get the wealth of Nanda.

Çaivathü térindici-r-řôli yalkalu  
 Mahalü lâṇmai achchāra-k-kūṛiya  
 Çorpalü tākü menru manjā  
 Tolkiyan madamayi loḷitta peeli  
 Vān pōḷ valvi-r-chūṛi nōn Çilai  
 Yavvār vilimbi-r-kamainda novviya-r-  
 Kanaikura liçaikūm viraiṣela-r-kadunganai  
 Muṛaṇmiku vadukar mūnnūra mōriyar  
 Tenrisai mādiram mūnniya varavirku  
 Viṇṇura vōngiya paniyerum kūnra-t-  
 Toṇ kadir-t-tihiri yuruḷiya kuṛaitta  
 Varai irandavarō Çenranar  
 Paṛai yaṛain tanna valar namakkoḷittē.\*

—281 *Māmūlanāṛ.*

மாசில் வெண்கோட்டண்ணல் யானை  
 விளையுட் டப்பிய வருங்கேழ்வயப்புலி  
 மாநில நெளியக் குத்திப் புகலோடு  
 காப்பில் வைகுந் தேக்கமில் சோலை  
 நீரம்பா நீளிடைப் போகி  
 யரம்போழ்வவன் நிலநெகிழ்ந் தோரே.

\* செய்வது தெரிந்திசுற் றோழியல்கலு  
 மகலு ளாண்மை யச்சற் க் கூறிய  
 சொற்பழுதாரு மென்று மஞ்சா  
 தொல்கியன் மடமயிலொழித்த பீலி  
 வான்போழ் வல்லிற்சுற்றி நோன்கில  
 யவ்வார் விளிம்பிற் கமைந்த நொவ்வியற்  
 கனைகுர லிசைக்கும் விரைசெலற்கடுங்களை  
 முரண்மிகு வடுகர் முன்னுற மோரியர்

This is also an ode by the maid to her lady on her sorrow on the departure of her lover. (Translation) Lady! Be considerate in your actions; before departing from here, your lord promised to show his valour (and return soon); now he has gone to the other side of the mountain which stopped the further running of the chariot wheel—which resembles the splendour of the Sun that rises in the high mountains full of dew and towering to the sky—of the Moriyar with the troublesome Vadukar who are sharp-shooters for their vanguard, whose intention it was to reach the southern sea. He has removed our disreputation like the sounds of a war-drum.

The main idea conveyed by these odes is, the heroes have crossed a certain mountain. If the query why and for what purpose they pass that particular mountain is raised, the reader would be forced to find out an answer from the odes themselves, which are, as usual, complete pieces. Then what is the answer we find in these odes. It is for the purpose of driving out the Moriyar whose intention it was to go to the southern sea; figuratively, to subjugate the southern kingdoms according to 281. They had for their vanguard people living on the other side of the Venkata hill, who are the next neighbours of the Tamils. The Tamil army was commanded by the chieftain of Mohur (251) though the generalissimo was the Pandiya Neduncheliyan-Āriyappadai-kadanda according to *Chilappathikaram*. That they won a victory over their enemy is obvious from No. 69 where it is clearly stated that the hero is engaged in destroying the fortifications of the enemies on the other side of the hill—Venkata. It is pertinent to ask how the Venkata hill was fixed as the limit of the entry of the Moriyar; it may be pointed out from ode 265 (264 of S. K. Ayyangar, page 89 of the *Beginnings of South Indian History*) where it is expressly stated that the hero crossed the Venkata hill; the ode graphically describes the people inhabiting that tract.

Niṇam poti viḷuttadi neruppin vaittedu-t-  
Tanaṇkaru marapir-r-pé yai póla-  
Viḷarūn rinra vētkai nīṅga-t-  
Tukaḷaṇa viḷainda tōpi paruki-k-  
Kulā a vilvi-r-kodūṇōk-kādavar  
Pulā a-ṛ-kaiyar poosa-a-vāya

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தென்றிசை மாதிர முன்னிய வரவிற்கு  
விண்ணுற வோங்கிய பனியிருங் குன்றத்  
தொண்கதிர்த்திகிரி யுருளிய குறைத்த  
வரையிறந்தவரோ சென்றனர்  
பறையறைந்தன்னவலர் நமக்கொழித்தே.

Rôraçu vürüṭṭüm kudumi-k-kurāṇ lodu  
 Marā añ çirūr maruṅgi-r-ṛüṅgüm  
 Çeñnūtal yānai vèṅkatam taḷī  
 Vemmunai yarṭim çura pirandôr.\*

That is the northernmost natural boundary of the Tamilakam as is found in the literature of old.

I have to note in passing that I have followed my own MSS. in the readings of the odes concerned. Taking first ode No. 251, the reading of the word *Paṇiyadamaya* is stated to be *Paṇiyamayil* in the *Beginnings of South Indian History* (page 88, note 9) which is also the reading in the printed edition. I am sorry I have to differ from the text supplied by M. V. Swaminatha Ayyar for whom I have profound respect, yet I have to point out that the word *Paṇiyamayil* makes no sense there and the construction too could not be finished. So also the correct reading of *Varaivāyumbār* has been read as *Araivāyūmbār*; Pandit A. M. Satagōparāmāññāchārya of the Govt. College, Kumbakonam, in his learned contribution on Kōśar to the *Sentamil* writes to mean that it may be a place near *Podiya mountain* (Vol. XXIV, p. 23), though the meaning of both the phrases may be taken to be the same in a general sense (*Arai-Kal*). If it is *Varai* it would point out a mountain and *Arai* may be taken as a boulder even and would not satisfy the ideas contained in the stanza; cf. 281 where it is read as *Kuraitta varai*. The language should be so palatable as to be easily pronounced. It is also the case with ode No. 69.

Now taking stanza 251 first for critical study, the Subject or Nominative of the ode is the hero of the poem (*Nilainekiṇtōr*); the predicate is that he “would not tarry longer” (*taṅgalar*); though it has no object being an intransitive verb, the questions where and for what purpose may be put and in answer to these questions we get the answer that he has gone beyond the mountain in pursuit of wealth. In passing it may be mentioned that in the classification of the grammar called *Aham*—poems dealing with the Subjunctive

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\* நிணம்பொதி விழுத்தடி நெருப்பின் வைத்தெடுத்த

தணங்கரு மரபிற் பேஎய் போல்

விளநூன் நின்ற வேட்கை நீங்கத்

துகளற விளைந்த தோப்பி பருகிக்

குலா அவில்விற் கொடு நோக் காடவர்

புலாஅற் கையர் பூசாஅவாய

ரொராசு வருட்டுங் குடுமிக் குராசு லொடு

மராஅஞ் சேரர் மருங்கிற்றாங்குஞ்

செந்துதல் யானை வேங்கடந் தழிஇ

வெம்முனை யருஞ்சுர பிறந்தோர்.

mood—the lover is permitted to separate himself from the object of his love either for the sake of wealth or learning. All the odes under discussion refer to the separation on account of wealth. In days of yore it was the habit of heroes to go on expedition for amassing wealth which would be presented to the intended. We know from many other sources that the sons of Tamilakam were all brave warriors and they were brought up so by their mothers even from their infancy. And internecine quarrels seem to be a pastime with them. And so these odes also could not be an exception to this fact. Hence the particular hero's object could not be other than warfare under some one's banner. What is the purpose for which he went to the other side of the mountain is the question. That he went there for a fight has to be inferred in this ode. But 69 is more pointed on the point. We read there that the hero would bring precious ornaments (*Nankalan tarūm*) after demolishing the well-guarded fortifications. 281 also gives room for the inference that the object was to fight the enemies of Tamilakam, that is, the Moriyars, who had the Vadukars for their vanguard. Aham 31 stands as a beacon-light in this matter.\* This ode also is by Māmūlanār and the poet here says that the hero has gone beyond many mountains where our language is unknown and which place is guarded by the three Tamil kings. The commentator on the above also explicitly says that the hero went far away crossing many mountains.

Take again stanza 69. There also the poet puts into the mouth of the maid the following:—Though forgetting the pleasures he enjoyed with you

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\* நெருப்பெனச் சிவந்த வருப்பவிர் மண்டிலம்  
 புலங்கடை மடங்கத் தெறுதலின் ஞொள்கி  
 நிலம்புடை பெயர்வதன்று கொலின்றென  
 மன்னுயிர் மடிந்த மழைமாறமையத்  
 திலையில் வேரங்கு நிலையுயர் யாஅத்து  
 மேற்கவட் டிருந்த பார்ப்பினங் கட்குக்  
 கல்லுடைக் குழம்பின் வயவர் வில்லிட  
 நிணவரிக் குறைந்த நிறத்தவதர் தொறுங்  
 கணவிர மாலை யிலேக் கழிந்தன்ன  
 புண்ணுமிழ் குருதி பரிப்பக்கிடந்தோர்  
 கண்ணுமிழ் கழுகின்காண நீந்திச்  
 சென்ற ரென்பிலர் தோழி வென்றியொடு  
 வில்லலைத்துண்ணும் வல்லான் வாழ்க்கைத்  
 தமிழ்கேழ முவர் காத்தும்  
 மோழிபெயர் தேஎத்த பன்மலை யிறந்தே

(ll. 19, 20) has crossed to the other side of the mountain (*Varai erandakan-ranarāyinum*, l. 12). Which mountain did he cross or pass over? Answer to this query should be that mountain that stopped the further march of the rolling of the wheels of the car of the Mauryar. Incidentally he describes the place on the other side as a barren tract where the stags and hinds eat the round, sour goose-berries for their food (ll. 7-8).

No. 281 is more direct and pointed. Here the Maurya's intention is clearly stated and that their place of destination is the southernmost point of the continent; but they were stopped by the mountain. And our hero has gone just beyond that mountain which stopped the further running of the chariot wheel.

One more point has to be conceded rather than considered which is that any poet, anywhere it may be, would not dare to sing about the defects or the losses of his patron, but on the other hand would try to exaggerate even a small thing into a big one. But here poets vie with one another in eulogizing the brave deeds of their patrons; thereby we come to know of the defects of the enemy. Now here also it ought to be the case. And moreover, if it is the defeat of the chiefs of the Tamil land, then the compiler of these odes would not have selected such poems, and would be very zealous and careful in his selections. Viewed in these lights one would be able to understand that these odes also bear the same kind of interpretation.

Now coming to the Kosar mentioned in ode 254 Prof. Dr. Krishnasamy Ayyangar was of opinion that they were the advance guard of the Mauryas, and as such administered a crushing defeat upon their enemies near Podiyil Hill. Mr. K. G. Sessa Ayyar has ably refuted the point and said that it should be rejected as a myth.\* Pandit A. M. S. Chārya of the Kumbakonam College in an erudite contribution to the *Sentamil* (Vol. XXIV, pp. 33 to 48) divides the Kosars into three categories as (1) Warrior people of Tulunad, (2) Men of Royal Family, and (3) Civil Judges. And he opines that the Kosars referred to in Aham 251 belong to the first category,

cf. மெயம் மலிபெரும்பூட் செம்மற் கோசர் 15;  
இறுப்பு இடம் படுத்த வடுவுடை முகத்தர் கருங்கட் கோசர் 90;  
கடலாடு மகளிர் கொய்த ஞாழனும் கழனி யுழவர்குற்ற குவளையும்,  
கடிமிளைப்புறவிற் பூத்த முல்லையொடு பல்லிளங் கோசர் 216;  
காப்புக் கைநிறுத்த பல்வேற் கோசர் 113;  
நன்னன் நறுமா கொன்று நாட்டிற் போக்கிய ஒன்று மொழிக்கோசர்குறு 73;  
வளங்கெழு கோசர் விளங்கு படை நாறி 205.

Why all the previous writers hold that 'a passage was cut through the mountain passes for the chariots of the invaders' (Moriart Punaiter nemi

\* Q.J.M.S., Vol. XIV, p. 277.

yuruliya kuraitta) is not explicable. Perhaps they rely on a similar passage in Puram 175 where the Scholiast says that the Himalayas was cut for the passage of the cars of a certain king who ruled over the world (Venri vēlai yudaiya viṣumbai-t-tōyūm nediya kudaiyinaiyum kodi yaṇinda tērinaiyūm yudaiya nilamuḷū thumāṇda vendarathu tiṇṇiya ār soolntha sakkaram yiyangudarku-k-kuṛaikkappaṭṭa vēḷi malaikku appālākiya ulakattirku-k-kaliyum idai kaḷi yākiya aṇṇai vāy).<sup>\*</sup> He also gives a variant and notes that there are men who may take it as Chakravāḷam. This scholia has been regarded by some at least, if not all, as not correct in this particular instance since he misunderstands Moriyar with Oriar. Granting that the Scholiast of *Puranānūru* has misunderstood in this particular place, are we not entitled to hold another meaning wherever it is possible? And so it comes to this. A particular mountain is spoken of here. The word *varai* is preceded by the word *kuraitta* (cut). It literally means cutting and its meaning is clearly expressed when it is preceded by the word *uruliya* (rolling). When the two words *uruliya kuraitta* are put together it would mean the rolling of the wheels were cut, that is to say, the mountain had stopped the rolling of the cars. Of course it is accepted on all hands that the cars belong to the Moriyas. So, instead of going to a far-fetched and senseless meaning we may be justified in holding that the warriors went above the Venkata—the hill that stopped the further rolling of the cars of the Moriyas.

External evidences are not wanting to show that all the Tamil kingdoms were independent of foreign power. If really Bindusāra as the Viceroy-prince or the king had subjugated the Tamilakam, then Aśoka would not have left it unmolested and sent embassies. The Tamil bards also would have sung the defeat of their own forces at least in an indirect way. No doubt they would have done so had the Moriyars been their patrons or Tamilians. Unfortunately they were neither. Nor there is a single stanza or ode relating to any king of the Moriya line.

From the long survey of the odes concerned and other poems it may be concluded as certain that the Moriyas were not allowed to enter Tamilakam and the last point they reached was Venkata hill. The battle took place on the other side of the Venkata hill between the combined armies of Ćera Chōla and Pāndiya under the general command of Pandiyan Nedunchelian who was ably assisted by the Mohur chieftain who took the field and the Moriyas assisted by Vadukars or Telugus.

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\* வென்றி வேலை யுடைய விசம்பைத்தோயும் நெடிய குடையினையும் கொடியணிந்த தெரினையு முடைய நீலமுழுதுமாண்ட வேந்தரது திண்ணிய ஆர்குழந்த சக்கரமியங்குதற்குக் குறைக்கப் பட்ட வெள்ளிமலைக்கு அப்பாலாகிய உலத்திற்குக் கழியும் இடைகழியாகிய அற்றைவாய்.

# STUDIES IN BIRD-MYTHS, No. XVIII.—ON AN ÆTIOLOGICAL MYTH ABOUT THE TURTLE DOVE AND OTHER SPECIES OF DOVES.

BY PROF. SARAT CHANDRA MITRA, M.A., B.L.

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THE Turtle Dove (*Turtur Communis*) is the emblem of conjugal fidelity. A few stragglers of this species of dove have been found in summer in Quetta and Gilgit. Had it been found in plentiful numbers throughout the peninsula of India, it would have been very well known to the people of the Indian countryside. In that case, I should have come to the conclusion that the Dove referred to in the undermentioned ætiological myth is the Turtle Dove beyond the shadow of a doubt.

The Turtle Dove is well known in England for the constancy of love which exists between the males and females of this species, as will appear from the following stanza from Byron's *The Bride of Abydos*, Canto I, Stanza 1 :—

“ Know ye the land where the cypress and myrtle  
Are emblems of deeds that are done in their clime ;  
Where the rage of vulture, *the love of the turtle*,  
Now melt into sorrow, now madden to crime.”

In the aforementioned stanza, “ *the love of the turtle* ” is specifically mentioned.

Oliver Goldsmith has also referred to the faithful and constant love of the Turtle Doves in the following lines of his “ Edwin and Angelina ” :—

“ And love is still an emptier ground,  
The modern fair one's jest ;  
On earth unseen, *or only found*  
*To warm the turtle's nest.*”

But there are three other species of doves which are very commonly found in the countryside almost throughout the peninsula of India. There are the Spotted Dove [(*Turtur Suratensis*)—Bengali *Chaval Ghughu* or *Telia Ghugu*] ; the Little Brown Dove (*Turtur Cambayensis*) ; and the Indian Ring-Dove [(*Turtur risorius*)—Bengali *Kalhak*, *Kahalaki* and *Pānk Ghughu*]. I am inclined to think that, as these three species of doves are very common throughout India and are, therefore, very familiar to the Indian people of the countryside, the dove referred to in the undermentioned ætiological myth is a member of any one of the aforementioned species.

Dr. W. T. Blanford, F.R.S., who is the author of Vol. IV (Birds) of *The Fauna of British India* Series wherein the aforementioned three species of

doves (*Turtur Suratensis*, *T. Cambayensis* and *T. risorius*) have been described, does not specifically mention that these doves are remarkable for their conjugal fidelity. But I am still of opinion that this constancy of love between the males and the females is a characteristic trait of all the species of doves.

This being so, the uncultured people of the Indian countryside must have noticed the aforementioned peculiarity in the character of the doves, namely, their steadfast love between the males and the females. They were struck by this habit; and, finding it to be uncommon among other species of birds, have fabricated the undermentioned ætiological myth to account for the origin of this peculiar trait in the character of the doves:—

In very ancient times, Chandraketu was the King of the Malayan Islands and loved his Queen Chitralkhā to distraction. She, in her turn also, almost adored her husband and followed him like a shadow.

Chandraketu had another kingdom which was named Maradwipa and which was situated in the midst of the sea at a little distance from the Malayan Islands. One day, news was brought to Chandraketu that the King of Madradesha had invaded Maradwipa. On hearing this news, Chandraketu fitted out a large fleet of ships, gathered a large army of soldiers and camp-followers, and, after bidding a touching farewell to Chitralkhā, embarked in the ships and set sail for Maradwipa.

Shortly after Chandraketu had set sail, a terrific storm burst over the sea. Being unable to withstand the fury of the storm, the king's ship was capsized, he struggled for a long time with the waves; but, ultimately losing his strength, became faint and unconscious and sank beneath the waves.

One night, Rānī Chitralkhā dreamt a dream in which she saw that her husband had been shipwrecked in the sea and that he was battling with the waves of the tempestuous sea. This dream very much perturbed her mind; and, as soon as the day dawned, she went to the sea-beach. Shortly after her arrival there, the corpse of her drowned husband Rājā Chandraketu was thrown by the waves upon the seashore. She became mad with grief on seeing her husband's corpse and threw herself into the sea. The gods in heaven were filled with pity at the sight of this touching exhibition of conjugal fidelity and metamorphosed the bodies of King Chandraketu and Rānī Chitralkhā into two doves the most noteworthy trait of whose character is the constancy of love between the males and the females, and the habit that they never leave each other's company.\*

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\* *Vide* the article entitled: "*Ghughu Pakhira Katha*" or "*The Story of the Dove*" in the Bengali Monthly Magazine, *Khoka-Khuku* (Boys and Girls) (published from No. 108, Narikel-durga Main Road, Calcutta) for 1330 B.S., (1923—1924 A.D.) pages 264—266.



The aforementioned ætiological myth bears a striking similarity to the Greek story connected with the metamorphosis of Alcyone or Halcyone, daughter of Æolus. She had married Ceyx who was drowned while he was going to consult the Oracle. The gods informed her, in a dream, of her husband's tragic death. When, on the next morning, she discovered her husband's body lying on the sea-beach, she was stricken with violent grief and cast herself into the sea. Thereafter she, with her husband, was metamorphosed into birds of the same name, that is to say, Halcyons who keep the waters calm and undisturbed when they build their nests on the surface of the sea and sit on them.

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# STUDIES IN BIRD-MYTHS, No. XIX—ON AN ÆTIOLOGICAL MYTH ABOUT THE BROWN FISH-OWL.

BY PROF. SARAT CHANDRA MITRA, M.A., B.L.

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THE Brown Fish-Owl (*Ketupa zeylonensis*) is a bird commonly found throughout India, Ceylon and Burma. It frequents well-forested tracts near the sea, rivers and large bodies of waters.

This Indian Fish-Owl generally spends the day in a thickly-foliaged tree and, after sundown, emerges from its hiding-places and flies to the margins of bodies of water for the purpose of seeking its food. It feeds upon fish and crabs, but also occasionally kills birds and small mammals. It utters a loud dismal cry of "haw, haw, haw, ho". It breeds during the period commencing from December to March and lays two white oval eggs in the hollows of trees and in the deserted nests of a fishing-eagle or, sometimes, on the ledges of rocks. In this last mentioned case, a small nest is made of sticks.

Dr. W. T. Blanford, F.R.S., at pages 281-282 of Vol. III of the *Birds of India* (in *The Fauna of India* Series) gives the Bengali name of this bird as *Bhutum*. But the Bengali zoologist Rāi Bahādur Rām Brāhma Sanyāl, C.M.Z.S., at page 279 of his *Handbook of the Management of Animals in Captivity in Lower Bengal*, mentions the Bengali name of this bird as *Hatam Pechā*.

Then again, Dr. W. T. Blanford, F.R.S., at pages 264-266 of the third volume of *The Fauna of India—Birds*, also mentions that the Barn-Owl or the Screech-Owl (*Strix flammea*) is called in Bengali *Bhutum Pechā*.

The undermentioned ætiological myth is narrated in many parts of Bengal, which accounts for the evolution of this bird :—

Once upon a time, there lived a *Baniyā* (or trader) and his wife. As the latter had not gone to her parental home for a long time, she made up her mind to pay a visit to her parents as soon as practicable. So, one day in the cold month of *Pausha* (December-January), she, escorted by her husband, started for her paternal home which was in a village about five *kroses* off. Thus fatigued by the long tramp over ten miles of road, and suffering from hunger and cold, they arrived at their destination at a late hour of the night. After her arrival, the *Baniyā's* wife went inside the house, and, meeting with her overjoyed kinsmen, was engrossed in lively conversation with the latter. She left her husband in the outer courtyard of the house, where he sat shivering in the cold. His wife quite forgot him and, after taking her

evening meal with the other members of the family, fell fast asleep. All through the cold night of *Pausha*, the poor *Baniyā* sat shivering in the cold and suffering from the pangs of hunger. At last, he died of cold and hunger and was transformed into the Brown Fish-Owl (*Ketupa zeylonensis*). When, in the morning, the *Baniyā*'s wife remembered her husband, she and her mother went to the outer courtyard of the house to look for him. There they found that the *Baniyā* (or trader) had been metamorphosed into the Brown Fish-Owl. Seeing them, the bird cried out: "*Huñ uttam*" [(हु उत्तम) or "*Well, all this is very blameworthy*"]. Being very much sorrow-stricken on seeing this distressing sight, the *Baniyā*'s wife also died and was metamorphosed into a Brown Fish-Owl. Both of them then flew away.

When all the villagers came to see them, the male Brown Fish-Owl kept crying out "*Huñ uttam, Huñ uttam*" (or "*Well, all this is very blameworthy*"). From this cry of *Huñ uttam*, the birds came to be known by the name of "*Hu tum*".\*

The name *Bhutum*, which is mentioned by Dr. W. T. Blanford as being the Bengali appellation of both the Brown Fish-Owl (*Ketupa zeylonensis*) and the Screech-Owl or Brown-Owl (*Strix flammea*) may be derived from the Bengali word "*Bhūt*" which means "*a ghost*". Now this name is quite in accordance with the superstitious belief entertained by the Bengali womenfolk about these owls. They look upon these birds as "*the messengers of death*" or as ghosts under the guise of birds. Therefore, whenever a Bengali woman hears the hooting and the weird and dismal call-note of the aforementioned two owls, she says: "Go away; be off; else I shall cut off your nose with a fish-knife." These words are uttered for the purpose of scaring away these supposed ghosts which are believed to be incarnate in the owls.

The name *Hutum*, which is mentioned by Rāi Bahādur Rām Brāhma Sanyāl as being the Bengali appellation of the Brown Fish-Owl, is clearly a contraction of the words "*Huñ uttam*" which were uttered by the deceased *Baniyā* after he had been metamorphosed into the avian form.

As the *Baniyā* spent the whole of the bitterly cold night of *Pausha* in the outer courtyard of his father-in-law's house, the primitive myth-maker of Bengal has transferred him into the Brown Fish-Owl which is a bird of pre-eminently nocturnal habits and lives and moves and has his being in the darkness of the night.

It will not be out of place to mention here that, not only in Bengal, in India, but also in many other countries of the world, the owl is looked upon as a bird of ill-omen and that its dismal cry is heard with superstitious terror

\* For a fuller version of this aetiological myth, see the collection of Bengali nursery stories entitled: "*Ājgubī Janma-kathā*" (or "*Wonderful Birth-Stories*") by Umesh Chandra Nag, Calcutta: Published by the Sishir Publishing House. 1329 B.S., pages 19—26.

by the people thereof. The Bedouins of Tunisia in North Africa also regard this bird with great horror and believe that its cry forebodes death. They relate the undermentioned myth accounting for the evolution of this bird of evil repute :—

“ The cry of the owl—in every land a bird of ill-omen—is listened to with a panic shudder by every Bedouin mother.

The owl, they say, is the spirit of a horrible old woman who beat her son to death because he forgot to fetch her a sieve. And in consequence she flies by night in the desert, and should she alight on a *Gourbi* (skin tent of a nomad) the child within is doomed to certain death. Wherefore on every *Gourbi* in the south you may see a sieve or an upturned saucepan with holes pierced in it, placed there that the sight may afflict the owl with repentance and save the child ! ”\*

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\* *Vide* the article entitled “ *Where Perfection is Unlucky. Strange Superstitions in the Land of the Arabs.* ” Published in the *Calcutta Daily, Englishman*, of Monday, the 7th June, 1926.

## REVIEWS.

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### The Historical Geography of Early Japan.

BY MR. CARL WHITING BISHOP,

*The Smithsonian Institution, Washington, 1926.*

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THIS is a paper read at the joint meeting of the Association of American Geographers and the American Geographical Society and reprinted from the Geographical Review for January 1923. The object of the paper is to investigate into and arrive at a right comprehension of the foundation upon which rests the national life of Japan. The first contemporary accounts of the Japanese people are derived 'without exception' from Chinese sources. The Japanese became wholly an island people about the seventh century A.D., before which they were in close touch with the various civilized communities of the continent. The ancestors of the existing Ainu of Yezo (Hokkaido) were the earliest occupants of the Island who may have lived undisturbed for over several thousand years. Far back in the first millennium B.C., various branches of the great Mongoloid stock from eastern Siberia to the South Chinese littoral with probably in the latter case a slight Negrito admixture started invading the island. The result of the minglings in varying proportions forms the great bulk of the Japanese population. With the foregoing as the theme, the author enters upon a detailed study of the Ancestral Ainu and the Early Mongoloid Invasions of the Island.

The ancestral Ainu were the first to arrive on the island though in different batches separated by long intervals of time. These were divided into several sub-types and the language of this ancient race was essentially the same spoken at present by its survivors, as may be evidenced by the fact that the names of most places can only be explained in terms of Ainu speech. The origin of these people is still very vague, being differently stated. This much may be said as certain: that the Ainu represent an extremely ancient generalized type from which more than one of the wavy haired and heavily bearded races of Europe and Southern Asia have been specialized. The culture, and social, political and military organization are discussed. Then we have an account of the Mongoloids in respect of their original home, their invasion of the island of Japan and their civilization. The culture areas in the Korean peninsula, the introduction of bronze and iron into Japan and the introduction of agriculture are all dealt with exhaustively. The Chinese records disclose that there was a great and long turmoil on the island about the close of the second century which ended with the rise of a powerful queen (almost certainly the "Empress" Jingô Kôgô of Japanese legend) who extended her authority over the various tribes of the Wo. She had no husband but a brother who assisted her in the government. The author apprehends that this might have been an instance of royal brother-and-sister marriage custom which then existed in Korea also.

It is likely that the female rulers of the Wo derived their powers from the belief that they were the representatives of the Sun Goddess. At about the same period there flourished on the main island an independent kingdom. The people of Konu, although of the same race as the Wo, were in hostility with the latter and were ruled over by a king, who was in diplomatic correspondence with the Chinese in Korea. Mr. Bishop infers rightly that there was an invasion from Korea about the latter half of the second century. The powers of rulership of the Wo gradually changed from females to males resulting in the Historical Mikados. During this period also came into Japan from China Buddhism and the art of writing. The occupation of the mainland was gradually extended.

The various internal conquests and the final conquest of the Ainu, who gave trouble until recent years, are touched upon. But for the admixture of the Ainu, Japan would have been a second Korea—"in other words, a feeble imitation of China, without either the will or the force to think and act for herself." The pamphlet is profusely illustrated with the types of the Ainu, their dress and occupation. It is hardly necessary to say that the subject has been masterfully dealt with and does, indeed, high credit to its author.

M. V.

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## The Earliest Monuments of the Pandya Country and their Inscriptions.

BY MR. K. V. SUBRAHMANYA AYYAR, B.A., M.R.A.S.

(*Reprint from the Proceedings of the Third Oriental Conference, Madras.*)

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THE object of the author in writing this paper is, as he says, to furnish a short description of the stone couches and Brahmi inscriptions found scattered in the vicinity of the mountain cavern known as the Pañcapāṇḍavamalai in the extreme south of India, which form the earliest monuments of the Pandya country; and then to read and interpret the epigraphs, ascertaining the values of certain odd symbols employed in them and the language used: and in so doing to suggest their character and early use.

The Brahmi inscriptions in the cavern discovered in 1906 at Marugāltalai in the Tinnevely District are the earliest lithic records of the Tamil country and the most ancient lithic monuments of the Tamil race, if the inscriptions and the beds are synchronous. The inscriptions are also important as they may throw valuable light on the origin and development of the Tamil and Vaṭṭeluttu alphabets. The employment of Pali in these inscriptions show that it was understood in the Pandya country even at that early date. The late Mr. Venkayya believed these monuments to be Buddhistic. There are no Brahmi inscriptions in the cavern at Vīrasikhāmaṇi. The biggest of the caves is the Varicciyūr cave. There are Brahmi inscriptions engraved on the pillow portion of the beds themselves in the Mēṭṭupatti cave. These establish beyond doubt the synchronism of the beds and the formation of the cave and are, therefore, of great importance.

In 1908, some more caves were discovered in the Madura district. The Kunnakudi cavern contains Brahmi inscriptions. The existence of a rock-cut well in it is a peculiarity. This water source takes the place of the natural springs of other caverns. The author says he accidentally discovered Ammanāmalai cave. Here was found an excellent ancient Jaina hermitage with huge Jain images and well preserved Vaṭṭeluttu inscriptions registering the names of the Jaina preceptors and disciples who presided there in the 8th century A.D. and who are stated to have come from the village Kurandi which the author himself has identified with a place of the same name in Travancore.

Rao Bahadur Mr. H. Krishna Sastri visited Kongarpuliyangulam and examined the caverns there. We are then told that though these caves had been resorted to by Brahmin ascetics, Buddhist monks and Jain priests alike, there are strong evidences to show that they were the abodes of Buddhist monks to the seclusion of other sects. This has been fully argued and convincing proofs are given. The Pandya caverns resemble each other and agree with the Buddhist monuments found in Ceylon. Mr. Ayyar then ascribes the characters employed in the inscriptions with one exception, to the third century B.C. and gives various evidences to support the statement.

As regards the character of these inscriptions, it is a pity that scholars have not paid the attention it requires in spite of Mr. Krishna Sastri's repeated appeals. We ought certainly to be grateful to Mr. Ayyar for his tabulated statement in this connection. The tabulation strongly suggests that the language of the inscriptions may be Tamil. The object of most of the epigraphs is to register the names of the persons who caused the monuments to be made. After these general remarks, the author makes a survey of each of the inscriptions. Mr. Ayyar's work in the field of epigraphy is noteworthy.

M. V.

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## ERRATUM.

In line 22, page 13 of this Journal, Vol. XVIII—No. 1, in the speech made by the Chairman at the Seventeenth Annual General Meeting of the Society, please read "Jews" for "Jains".

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# **List of Subscriptions and Donations received during the Quarter ending 30th September, 1927.**

Names.	Volume.	Amount.		
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Rao Saheb G. K. Alias Baba Saheb Deshpande, Poona	.. "	..	3	0 0
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**Books received during the Quarter ending  
30th September 1927.**

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**Government of India Central Publication Branch.—**

Guide to the Qutb., Delhi, by J. A. Page.

**The Smithsonian Institution, Washington.—**

1. The Classification and Distribution of the Pit River Indian Tribes of California, by C. Hart Merriam.
2. The Excavations of the Sanctuary of Tanit at Carthage, by Byron Khun De Prorok.
3. The Historical Geography of Early Japan, by Carl Whiting Bishop.

**University of Madras.—**

1. The Stone Age of India, by Sir S. Subrahmanya Ayyar (Lecture delivered on December 10, 1925.)
2. The Calendar for 1927—28, Vol. 1.

**University of Calcutta.—**

1. The Journal of the Department of Letters, Vol. XV.
2.       Do.               do.               do.               Vol. XVI.

**The Author.—**

1. Dates of Patanjali and Vatsayana, by H. A. Shah.
2. Jainism (A lecture), by C. S. Megha Kumar.

**The Indian Music Publishing House, Madras.—**

The Flute—A Study, by P. Sambamoorthy.

**The Government of Travancore.—**

1. Sri Mulam Malayalam Series, No. XVIII : Bheeshmopadesham, Hamsapattu, edited by Kolatteri Sankara Menon.
2. Sri Vanchi Setu Lakshmi Series, No. 6 : Balasankaram, Vol. 1, edited by Kolatteri Sankara Menon.
3. Sri Vanchi Setu Lakshmi Series, No. 7 : Aryabhateeyam, edited by Kolatteri Sankara Menon.

**Government of Mysore.—**

The Mysore Season and Crop Report for 1925—26.

**Superintendent, Government Museum, Madras.—**

Text of Passages—Gramophone Records of Languages.

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## EXCHANGES.

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Editors of:—

1. "HINDUSTAN REVIEW," *P.O. Box No. 2139, Calcutta.*
2. "INDIAN ANTIQUARY," *British India Press, Mazagaon, Bombay.*
3. "CEYLON ANTIQUARY," *The "Times of Ceylon", Colombo.*
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6. "WEDNESDAY REVIEW," *Teppakulam, Trichinopoly.*
7. "THE SOUTH INDIAN RESEARCH," *Vepery, Madras.*
8. "THE EASTERN BUDDHIST," *39, One Machi, Koyama, (Japan).*
9. "THE CHRISTIAN COLLEGE MAGAZINE," *Madras.*
10. "THE EDUCATIONAL REVIEW," *Mount Road, Madras.*
11. "THE VEDIC MAGAZINE," *Gurudatta Bhavan, Lahore.*
12. "ZEITSCHRIFT DER DEUTSCHEN MORGENLANDISCHEN  
GESELLSCHAFT," *Halle, Germany.*
13. "THE SANSKRIT BHARATHI," *Burdwan, Bengal.*
14. "THE JOURNAL OF THE AMERICAN ORIENTAL SOCIETY,"  
*New Haven, Connecticut, U.S.A.*
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16. "EVERYMAN'S REVIEW," *Madras.*
17. "MAN," *The Royal Anthropological Institute, London.*
18. "DJAWA," *Kanarillaan, 13, te Weltevreden, Java.*
19. "MAN IN INDIA," *Ranchi, B.N.Ry. (India).*
20. "THE KARNATAKA GRANTHAMALA," *Mysore.*
21. "THE EVENING MAIL," *New Tharagupet, Bangalore City.*
22. "THE JAIN GAZETTE," *Parish Venkatachala Iyer Street,  
George Town, Madras.*
23. "THE INDIAN SOCIAL REFORMER," *Navsari Chambers,  
Outram Road, (opposite Hornby Road), Fort, Bombay.*
24. "PRABUDDHA BHARATA, ADWAITA ASRAMA," *Mayavati P.O.,  
Almora Dist.*
25. "THE SHAMA'A," *Aghore Mandir, San Thome, Madras.*
26. "VISHVA-BHARATHI," *10, Cornwallis Street, Calcutta.*
27. "NAVASHAKTI," *Dharwar.*
28. "THE SHRINE OF WISDOM," *The Hermetic Truth Society, Lincoln  
House, Acacia Road, Acton, London (21-3).*
29. "WELFARE," *91, Upper Circular Road, Calcutta.*
30. "MYSORE BLUE BOOK AND PUBLICITY JOURNAL," *Bangalore.*
31. "BUDDHIST ANNUAL OF CEYLON," *Colombo.*
32. "KARNATAKA SAHITYA PARISHATPATRIKA," *Bangalore.*
33. "EPIGRAPHIA INDO-MOSLEMICA," *Simla.*

34. "YOGAMIMAMSA," *Kunjavana, Lonavla, Bombay.*
35. "MAHARAJA'S SANSKRIT COLLEGE MAGAZINE," *Mysore.*
36. "THE MYSORE GAZETTE," *Librarian, Public Offices, Bangalore.*
37. "PRABUDDHA KARNATAKA," *Karnataka Sangha, Central College, Bangalore.*
38. "INDIAN STORY TELLER," *164, Cornwallis Street, Calcutta.*
39. "THE GUARDIAN," *86, College Street, Calcutta.*
40. "THE YOUNG MEN OF INDIA," *5, Russel Street, Calcutta.*
41. "THE PREMA," *Tungabhadra P.O.*
42. "AL-KALAM," *Bangalore.*
43. "VRITTANTA PATRIKA," *Mysore.*
44. "MYSORE CO-OPERATIVE JOURNAL,"  
*No. 1, 1st Road, Chamarajpet, Bangalore City.*
45. "INDIAN HISTORICAL QUARTERLY," *107, Mechuabazar Street, Calcutta.*
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47. "THE KARNATAKA," *Basavangudi P.O., Bangalore City.*
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49. "INDIAN REVIEW," *George Town, Madras.*
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53. "THE MYSORE ECONOMIC JOURNAL," *Gundopunt Street, Bangalore City.*
54. "THE CATHOLIC EDUCATIONAL REVIEW," *Mangalore.*
55. "THE INDIAN THINKER," *Anantha Rama Varma Press, Fort, Trivandrum.*

Publications from :—

56. THE DIRECTOR OF PUBLIC INSTRUCTION, *Poona.*
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The Secretaries of:—

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*Musée Guimet, Place d'Iena, Paris (XVI).*

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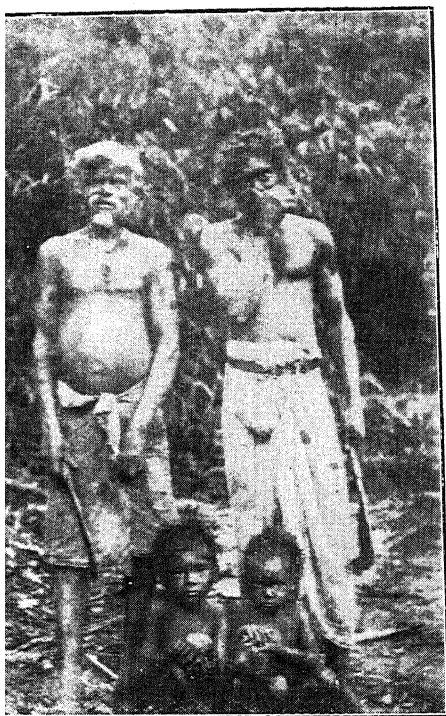
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The Hill-Pandaram  
(Resting in his home by the side of fire)



The Hill-Pandaram

# The Quarterly Journal of the Mythic Society

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Vol. XVIII]

JANUARY, 1928

[No. 3

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## A PRELIMINARY NOTE ON THE HILL-PANDARAMS OF TRAVANCORE.

BY L. A. KRISHNA IYER, ESQ., M.A., M.R.A.S.

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THE Hill-Pandarams are a small tribe found in the Ranni, Konni and Atchencoil Reserved Forests of Central Travancore. Preferring those uninhabited parts abounding in game, they retired before the march of civilization and are now found in localities, where absence of competition gives them greater freedom and more room for their nomadic life. In his "Races of Man" Dr. Haddon refers to some of the Pre-Dravidian tribes of South India as jungle-hunters in a state of savagery with very little, if any, agriculture. The Hill-Pandarams afford a striking illustration and are probably one of the least modified survivals of the ancient Pre-Dravidian race.

*Habitations.*—Being of a migratory disposition, the Hill-Pandarams have no permanent habitations. Dwellings are of the simplest character, being mere break-winds resting on a jungle-wood post, or small huts made of jungle-wood posts and thatched with wild plantain leaves. A hut can accommodate two or three individuals. They also live in caves.

In no case do they stay in a locality for more than ten days. The extent of stay depends on the availability of natural food supplies. Children above ten years of age do not sleep in the same hut with their parents. There are separate dormitories for the unmarried young men and women.

They enjoy the warmth of a fire at night. In common with other hill tribes, they make fire by friction by means of an apparatus called *chakmuk*. Safety matches are now invading their haunts.

*Diet.*—Being of a migratory disposition, they do not cultivate land. They live on fish, the fruits of cycas, pith of sago palm, and on any roots and tubers that are handy. When they exhaust their resources of food supply, they migrate to another favoured locality.

*Adolescence.*—No ceremony is attached to a boy passing into man's estate. When a girl attains puberty, she is lodged in a separate hut for nine days. During this period, no one can see her. On the tenth day, she bathes (the body being rubbed with turmeric) and then goes home. Mothers instruct girls in their daily work.

*Marriage Customs.*—In common with other hill tribes of Travancore, childhood is of short duration, as a girl is being prepared for the most important occurrence of life, matrimony. Girls reach maturity by twelve, and marriage takes place both before and after puberty. A man marries the daughter of his maternal uncle. Unlike the Muduvans, he is at liberty to marry his paternal aunt's daughter. Prohibition extends to marriage with the daughter of one's mother's sisters or father's brothers.

*Child Betrothal.*—Girls are betrothed very early in life by their parents; generally a girl of seven or eight years of age is married prospectively to a man of eighteen or twenty, who looks upon her as his wife. I was informed of an instance of a girl betrothed when she was about a year old.

Marriage is arranged for by the boy's father who moots the marriage question to his brother-in-law. Should the match be decided upon, marriage takes place in the bride's house and lasts for a day. The guests are treated to a feast in the evening, to which all the village folk are invited. After feasting comes the ceremony proper, when the bridegroom and the bride are seated before the audience. Presents of new cloth are made to the bride and the bridegroom ties a necklace of beads round the neck of the bride, when his sisters are present. The bridegroom's father then blesses them "May your union be happy". The married couple enjoy the night in a hut specially erected for the occasion, and live separately from the morrow. They are truly monogamous.

*Funeral Ceremonies.*—The dead are buried where they die. A pit is dug hip-deep. The corpse is disposed east to west in the grave, and covered with plantain leaves. The pit is then filled up with earth. After burial, they leave the locality, and no more go and live there in after-years. Pollution lasts for eight days. On the ninth day, all the men meet. The chief mourner gives a big feast in honour of the dead.



*Inheritance*.—The most primitive type of order of inheritance is that the son succeeds to the *patria potestas* on their father's death. It is remarkable that the Hill-Pandarams alone afford us a typical example of this form of inheritance while all the other hill tribes follow the Markmakathayam law of inheritance in Travancore.

*Conclusion*.—This in short is an account of some of the customs of a people who are on the down-grade of civilization. Being nomadic hunters and collectors of jungle produce, they live in rock-shelters, simple huts or mere break winds and leave them in favour of another, when the resources are exhausted.

They are fast disappearing. They obtain food so abundantly with little labour that they do not suffer from want, that great spur to human progress. Their life of isolation develops in them a narrowness of view and conservation of custom, which prevents them even from associating with neighbouring tribes. The marriage of near relations leads to deterioration, the reason being that they often suffer from the same defects and these are much intensified in the children. It has been stated that the dying out of the aboriginal races when they come into contact with civilization is due to diseases of civilized man, and that tuberculosis and small-pox are the most destructive to the aboriginal. In the case of the Hill-Pandarams, small-pox has been the cause of their gradual extinction. In the words of Inglis Parson, evolution has doomed the inferior races to die out in the presence of a superior race, if the climate is suitable to both.

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## HAMSASANDESA—A STUDY.

BY K. KRISHNAMACHARYA, ESQ., B.A., L.T.

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THAT, in the midst of his voluminous philosophical and didactic works, Sri Venkatanatha, or Sri Vedanta Desika as he is more popularly known, found it possible to leave behind him some poems of no inferior order, like the *Yadavabhyudaya* and the *Hamsasandesa*, is of no small import to all true lovers of Sanskrit literature. In the former he does not appear to have kept before him any model to follow but to have only drawn upon his own constructive skill; but this much cannot be said of the latter. Here the model he had before his mind's eye was certainly Kalidasa's *Meghasandesa*. But it is not a totally slavish imitation of the model he has permitted himself to accomplish. He has left his stamp of originality here and there in the fitting of the details of the poem; and this is transparently evident even to a casual reader thereof. In order to establish this point, I have undertaken here to take the reader through a critical study of his poem, the *Hamsasandesa*, in some detail, instituting as far as necessary a comparison between it and the *Meghasandesa*.

The plan of the poem is based upon Kalidasa's. The meeting of the forlorn lover with the messenger, the thought of the beloved and her forced sufferings from pangs of separated love in a distant corner of the land, the idea of a message of hope to sustain her till the approaching end of the cursed separation, the feeling of brotherly affection towards the messenger, the unbounded faith in the messenger's generosity and capacity to discharge the undertaking, the sight of the auspicious omens, the description of his route, the variety of entertainments to please him on the way, the spiritual experiences in the several sacred places along the route and the incidental service to the Supreme God (Vishnu in this case) elevating the soul of the messenger and proving quite auspicious for the work in hand, the description of the destination, the probable state (physical and mental) of the beloved at the time of the messenger's approach, the anxiety of the lover to see the message delivered timely and without the least disturbance to the already afflicted heart of the beloved, the sweet message itself, the proof of the messenger's genuineness and trustworthiness, and lastly the touching benediction pronounced on the messenger, are the several landmarks in the poem closely followed from the model. On this framework Venkatanatha builds his own edifice of a Kavya, employing his skill in the matter of details of ornamentation.

The originality for the conception of the plan is certainly Kalidasa's. No amount of originality on the part of his successors in the matter of the execution of details on *this* plan can entitle them to dispute the palm with Kalidasa. His title to respect at our hands stands on a different footing altogether. But among those who have aimed at his model the claims for title to recognition are to be determined on the answers to the question—

- How far have they succeeded in their aims? The idea of a poem embodying the message of a forlorn lover to his beloved through a trusted messenger seems to have suggested itself to Kalidasa by the touching message of Sri Rama to his beloved Sita in the Asokavanika conveyed by the faithful Hanuman, as recorded in the sweet words of that immortal prince among poets, Valmiki himself. But there is a difference between a suggestion worked out into an exquisite poem, and a poem faithfully followed and worked out into a reflection of itself. The plan of the poem, the choice of the metre, the chiselling out of the first details, and their fitting into an original and harmonious whole, æsthetically excellent—these are the indisputable claims of Kalidasa; while such claims cannot, in the very nature of things, be put up by even the greatest of his imitators. We are certain that, if the authors of other Sandesa-Kavyas were pressed to detail their title to recognition, they would not put forth such fantastic claims. Theirs is but a subordinate field; but some of them may, in rare cases, claim our attention to a larger extent than even Kalidasa, in the matter of the details of workmanship. With this clearing of the ground, let us enter into a study of Venkatanatha's poem.

It may be of interest to note here that, between the *Meghasandesa* and the *Hamsasandesa*, almost the whole of India is surveyed from Mount Kailas on the north to Ceylon in the south. Only a small tract between Ramagiri and Mount Malyavan is not covered. In a sense, therefore, Venkatanatha's poem may be said to be complementary to Kalidasa's.

The choice of a swan in the poem is quite appropriate. According to the Ramayana, Rama starts on his expedition against Lanka, only after the advent of the *Sarat*. In this season the swans are believed to come down into the plains from the Manasa lake in the Himalayas, and move to the extreme south of the land.

In order that a poet may be rightly judged, one has first to find out what the Sanskrit Rhetoricians aptly call *Kavi-hridaya* (the poet's mind), or in other words, the motive of the poem. This *Kavi-hridaya* is at times easy of determination by means of a careful study of the character of the hero of the poem. For his *Meghasandesa* Kalidasa selected a hero of the *Dhiralalita* type in the banished Yaksha (निश्चिन्तो धीरललितः कलासक्तः सुखीमृदुः). In our

mythology the Yakshas are pictured to be a type of beings between the human and the divine. They are more divine than human. They are fabulously rich and are the subjects of King Kubera, the Lord of Treasure-Troves. They have infinite facilities and an inherent capacity to enjoy pleasure in all its aspects. Wealth, wine and women are the be-all and end-all of their existence. To suit the experiences of a hero of that type, Kalidasa has had to build up his poem on a substratum of the sensuous, but with a happy blending of the supersensuous here and there, because of the partial divinity also of the hero. The lines like

मथ्येद्यामः स्तनद्वयं भुवः शेषविस्तारपाण्डुः,  
 or सभ्रूमङ्गं सुखमिव पयो वेत्रवल्याश्चलोर्मि,  
 or लोलापाङ्गैर्यदि न रमसे लोचनैर्वर्द्धितोसि,  
 or संसर्पन्त्याः स्खलितसुभगं दर्शितावर्तनाभेः,  
 or even ज्ञातास्वादः पुलिनजघनां को विहातुं समर्थः,

are quite appropriate for the poem. If, after choosing an Yaksha for his poem, Kalidasa did not bring in the sensuous to the extent he has done, his work would have been classified as of some inferior order, and would not have gained the present enviable distinction.

But Venkatanatha has chosen for his poem the immortal hero of the Ramayana. He is of the *Dhiro-dātta* type.

(महासत्त्वोऽतिगम्भीरः कृपावानविकल्यनः ।  
 स्थिरोनिगूढाहंकारो धीरोदात्तो दृढव्रतः ॥ )

In one place, Valmiki himself puts the characteristics of his hero into the mouth of the selfless Hanuman, who revels in describing him as

रक्षिता सर्वलोकस्य स्वजनस्य च रक्षिता ।  
 रक्षिता स्वस्य वृत्तस्य धर्मस्य च परन्तपः ॥ . . . .  
 मर्यादानां च लोकानां कर्ता कारयिता च सः । . . . .  
 अर्चिषानर्चितोत्यर्थं ब्रह्मचर्यव्रते स्थितः ।  
 साधूनामुपकारज्ञः प्रचारज्ञश्च कर्मणाम् ।  
 श्रुतवान् शीलसम्पन्नो विनतिश्च परन्तपः ।  
 सत्यधर्मपरः श्रीमान् संग्रहानुग्रहे रतः ।  
 देशकालविभागज्ञः सर्वलोकप्रियंवदः ॥

And the purpose of Venkatanatha is but to popularize such a hero without taking away a whit from his characteristics, so glowingly painted in the immortal Epic. One cannot therefore logically expect, in the *Hamsasandesa*, an atmosphere surcharged with the sensuous. But occasionally, as we shall see, there is a skilful touch of the sensuous, without in any way rousing a sense of revulsion in the minds of the readers as being incongruous to the

setting of the whole poem. A poet, who indulges in descriptions inappropriate to the characteristics of his hero, justly lays himself open to the charge of being wanting in the sense of proportion. The few sensuous touches in the *Hamsasandesa* are necessitated by the exigencies of the situation. The hero, Sri Rama, is a separated lover and he is in the midst of his preparation for a gigantic expedition against his deadly foe Ravana, from whose base hands he is anxious to rescue in time his loving Sita. During moments of respite, he allows his mind to dwell on his Sita and her sufferings, or on those happy times he passed in her company before her captivity. His mind is, therefore, temporarily attuned to the sensuous on occasions. Hence the few touches like स्तोकोन्मग्नस्फुरितपुलिनां त्वन्निवासच्छेयव enhance the beauty of the poem as a whole.

As one who has drunk deep of Valmiki's Epic, Venkatanatha has, in his *Hamsasandesa*, undertaken to present to us what he considers to be the sweetest of the thoughts of that hoary sage. And for this he has chosen a vehicle on the model of Kalidasa's. He has of necessity to adjust himself to the two master-minds, without at the same time a complete effacement of his own individuality. His self-imposed task has therefore become doubly difficult. And, if under such limitations, he has yet been able to make his poem appeal to us, his title to respect at our hands stands certainly on an unshakeable foundation.

Hanuman has just returned to Mount Malyavan, after delivering Rama's message to Sita, who is pining in grief in a corner of Ravana's pleasure garden. And in token of his achievement he has not only brought Sita's crest-jewel, but also an urgent return message to her Lord that she would not wait a whit longer than a month at the most, before he could go and rescue her from the hands of the Rakshasa king.

धारयिष्यामि मासंतु जीवितं शत्रुसूदन ।

मासादूर्ध्वं न जीविष्ये त्वया हीना नृपात्मज ॥

Rama is therefore anxious to see that his projected expedition to Lanka is finished within the limited period, so desperately indicated by his Sita. A day's delay would spell disaster. When he is in such a state of mind, his eyes rest on a welcome swan in a sportive mood, in one of the lotus-tanks close by. The sight of the swan revives in his mind a happy memory of Sita. The bird has several points of affinity to her: its noble gait is just like Sita's; the spotless white of its feathers is nothing inferior to the dazzle of her silken garb; the note of its sweet sound resembles the tinkle of her anklets. Hence Rama's mind is totally absorbed in the bird, and for a time surrendering himself as a helpless victim of Cupid's shafts,—he falls into an

unbroken state of love-reverie forgetful of every consideration other than that of his beloved.

तस्मिन् सीतागतिमनुगते तदुकूलाङ्कमूर्ते  
तन्मञ्जारप्रतिमनिनदे न्यस्तनिष्पन्ददृष्टिः ।  
ध्वरश्चतौविलयमगमत्तन्मयात्मा मुहूर्तं  
शङ्के तीव्रं भवति समये शासनं रानिकेतोः ॥

Unlike the Yaksha in the *Meghasandesa*, who, on the mere sight of the cloud, is driven to dream of his beloved, Rama has stronger reasons here to lose himself in the thoughts of his Sita, because of the assemblage of certain resemblances to things closely associated with her.

With some difficulty he recovers himself, remembering that he is लक्ष्मणस्याग्रजन्मा. For on more than one occasion he had to be reminded by Lakshmana of his unheroic exhibition of weaknesses incompatible with his nobility and strength of mind. Did not Lakshmana try to dispel his mental gloom telling him

शोकेनाभिप्रसुप्तं ते ज्ञानं सम्बोधयाम्यहम् ।  
and महात्मानं कृतात्मानमात्मानं नावबुध्यसे ॥

on two painful occasions, when he was addressing, in his temporary madness, rocks and trees on the whereabouts of Sita soon after she was carried away from Panchavati? He does not want to give similar trouble to his brother on this occasion too.

Naturally Rama feels a friendly attachment to the swan, more friendly than even Hanuman's, and thinks of utilizing his services to cheer up Sita, with the news of his immediate approach at the head of a powerful army capable of destroying the whole Rakshasa band. Whether a bird can convey a human message does not trouble him for a moment, since his afflicted heart is not inclined to follow that stern logic of the sane. Nor do we wonder at this exhibition of weakness on the part of Rama, because

विश्लेषणक्षुभितमनसां मेघशैलद्रुमादौ  
याच्चादैन्यं भवति किमुत क्वापि संवेदनाहं ।

We have already had the instance of an Yaksha in a suppliant attitude before a cloud, which is but inanimate; and in the freshness of Sita's loss Rama himself did not fare better. Did he not appeal, in the words of Valmiki, to an equally inanimate mountain

कच्चित् क्षितिभृतां नाथ दृष्टासर्वाङ्गसुन्दरी ।  
रामा रम्ये वनोद्देशे मया विरहिता त्वया ?

and to the trees

कदम्ब यदि जानीषि हंससीतां शुभाननाम् । . . .  
यदि ताल त्वया दृष्टा पक्वतालफलसती . . .

and so on ?

But in the present case it is an animate being, a swan, he is addressing and it is undoubtedly संवेदनार्ह unlike rocks and trees. He has hitherto experienced something of the संवेदनार्हत्व of the animate beings. When he was questioning the animals of the forest whether they had any knowledge of Sita's whereabouts, did they not help him by certain physical movements of theirs, deeply indicative of their anxiety for their loveable companion, Sita ?

एवमुक्तानरेन्द्रेण ते मृगास्सहसोत्थिताः ।  
दक्षिणाभिमुखास्सर्वे दर्शयन्तो नभस्थलम् ।  
मैथिली ह्रियमाणा सा दिशं यामन्वपद्यत ।

Therefore it is that Rama sees in the हंस an अव्याजबन्धु and has no hesitation to apply to him for assistance in his present plight. He is certain his request will not go unheeded, because the Hamsa has a noble heritage, and he might have also heard that the very Lord of Creation had once come down as a mere charioteer for a noble end.

सर्वस्रष्टा विधिरपि यतः सारथित्वेन तस्थौ ।

Without much ado he tells him straight that he has to go to Lanka, the capital city of the Rakshasa King, on a sacred errand. The rainy season having finished, the *Sarat* has come back, and with it the Hamsa has come down from the North. There is yet the likelihood of his voyaging further South in search of fresh lotus-ponds, where undisturbed he can enjoy himself. But if he is to be reminded that the extreme South is the haunt of the Rakshasas, he may perhaps change his mind. So Rama assures him that he can easily overlook this one demerit of the South, in the midst of its several merits.

स्थानैर्दिव्यैरुपचितगुणां, चन्दनारण्यरम्यां,  
मुक्तासूतिं, मलयमरुतां मातरं, दक्षिणाशाम् ।  
अस्मत्प्रीत्यै जनकतनयाजीवितार्थं च गच्छन्  
एकं रक्षः पदमिति सखे दोषलेशं सहेथाः ॥

The very mission on which he goes is sacred, जनकतनयाजीवितार्थं, and for a good cause one can submit oneself even to an irksome inconvenience. Therefore the one defect can easily be excused (एकोहि दोषो गुणसन्निपाते निमज्जति).

Having himself treated him as an honoured guest, Rama is certain that the Raja-hamsa will receive a royal attention wherever he goes. Already the south wind has come as a faithful friend to welcome him with sweet

scents freshly gathered from the blossoms of lotuses and lilies. The light transparent autumnal cloud, with the straight rays of the sun shot through it like so many ribs radiating from a centre, and borne by the wind over his head, will just look like a state umbrella held over a royal personage.

सूक्ष्माकारैर्दिनकरकरैः कल्पितान्तश्शलाकाः

शारोपान्ताश्शतमखधनुश्शेष चित्रांशुकेन ।

ऊढाः पश्चादुच्चितगतित्वा वायुना राजहंस

छत्रयिरन्नभसि भवतश्शारदा वारिवाहाः ॥

Those, who are wont to watch the sunrise and sunset, will, with pleasure, remember the indescribable brilliancy of the wonderful pictures of nature they may have occasionally feasted their eyes upon. On one such evening, the writer had the fortune of witnessing an unforgettable sight which continues fresh in his memory. The sun was about to set, his lower limb just kissing the horizon. A thick cloud just covered the face of the luminous orb. Around it there was a thin belt of clouds through which the rays of the setting sun radiating in several directions could be distinctly seen. Around this belt again there was a semi-circular belt of somewhat thicker clouds, the outer ends of which were of a brilliant golden hue. The picture vividly brought to the writer's mind by this splendid natural phenomenon was that of an open temple-umbrella laid on the ground to face the East. The beautiful verse of Venkatanatha makes, therefore, a peculiarly happy appeal to his imagination.

Now to proceed. Before he should start, the Hamsa is to take a loving leave of his beloved the Padmini (the lotus creeper, here spoken of in the feminine), to whom he has now come back after a long and forced exile, and who is therefore in the midst of her unbounded joy. He is advised to gently cajole her into giving him leave to part, so soon after the reunion, and to promise her an early return.

प्रक्षीणां त्वद्विरहसमये जातहर्षमिदानीं ।

प्रत्यायास्यन्ननुनय शनैः पद्मिनीं स्वादु वाचा ।

But would the leave be granted ? Rama has no doubt of it, for

सा ते तन्त्रीखनसुभगया स्यादितिहाभ्यनुज्ञां

मन्ये कुर्यान्मधुकरगिरा मैथिलीसौहृदेन ।

The Hamsa's beloved is a Padmini, and so is Sita. Therefore there has sprung up between them a strong friendship. Women are generally supposed to sympathize more than men with women in distress, since it is only a woman who can appreciate a woman's heart more than a man. That is why perhaps Kalidasa's Yaksha asks his messenger, the cloud, not to threaten



the timid अभिसारिकाः of Ujjayini with his fearful thunder, but to let his lightning show them the way to their lovers on the dark roads of the city. (The lightning is spoken of in the feminine, as the spouse of the cloud.)

सौदामन्या कनकनिकषन्निश्चया दर्शयोर्वी  
तोयोत्सर्गस्तनितसुखरो मास्मभूर्विक्रवास्ताः ।

Almost the same idea has been beautifully brought out, even in the *Ritusamhara*, implying that, while the cloud does all it can to stand in their way, it is the lightning that is of real service to the poor women who are out to meet their lovers in a darksome night.

अभीक्षणमुच्चैर्ध्वनता पयोमुचा  
घनान्धकारीकृतशर्वरीध्वपि ।  
तटित्प्रभादशितमार्गभूमयः  
प्रयान्ति रागादभिसारिकास्त्रियः ॥

And in the *Mrichchakatika*, the idea is more explicit in the beautiful couplet, where Vasantasena gently chides the lightning for its indifference.

यदि गर्जति वारिधरो गर्जतुतन्नाम निष्ठुराः पुरुषाः ।  
अयि विद्युत् प्रमदानां त्वमपि च दुःखं न जानासि ? ॥

When such is the sympathy of women for even strangers of their sex, what may be the sympathy for a sister of blood? Need we say that this touching farewell of the Hamsa is far finer than the one of the Megha in the sister poem?

(आपृच्छस्व प्रियसखमसुं तुङ्गमारुह्य शैलं, etc.)

When a loving parent sends his child on an errand to a distant place, he is particularly anxious that his child avoids the path of the wicked lest it should court danger to its person. No less is the anxiety of Rama when he advises his lovely Hamsa that he should

उड्डीयेथास्सारसि जवनादक्षिणाशानुसारी  
पश्यन् दूरात् प्रबलगरतां पक्षिणां दत्तवर्त्मा ॥

As the Hamsa springs up in the air from the top of the Malyavan, the mountain carrying the white reflection of the bird is sure to resemble, for once, the Lord of Creation, Sri Maha Vishnu, just letting out the Moon from his mind, as described in the *Purusha Sukt* (चन्द्रमामनसो जातः). This picture is evidently in imitation of the picture of the cloud in the *Meghasandesa*, so finely brought out in the lines

येन श्यामं वपुरतितरां कान्तिमापत्यते ते  
बर्हेणैव स्फुरितरुचिना गोपवेषस्य विष्णोः ।

Venkatanatha's picture rests on a convention that all mountains carry on them precious stones capable of reflecting the objects around (मणिमयो माल्यवानेप शैलः). Hence the little unnatural atmosphere about it, as against Kalidasa's.

In his ærial flight the Hamsa will have a variety of sights to keep his eyes pleasantly engaged, not the least of them being the unskilled but loveable looks of the country women (पामरीणां) directed on him, as an object of wonder (अभ्रभङ्गेऽप्यधिकस्तुभगैर्निश्चितांगः कटाक्षैः). Here again the influence of the master-mind is distinctly seen (भ्रूविलासानभिज्ञः प्रीतिस्निग्धैर्जनपदवधूलोचनैः पीयमानः).

In the districts bordering on the Andhra on the one side and the Karnata on the other, the Hamsa's ears cannot but be attracted to the beautiful songs of the love-laden maidens of the peasant class lying under the spreading branches of the hospitable mango trees, while they guard their rice-fields from the treacherous birds and other pests. The first sight of importance there will undoubtedly be that of the Hills of Tirupati. The appellation Seshadri rightly fits them, from their serpentlike shape. The tops of these hills carry a layer of red sandal stones which looks like बद्धरत्नैश्शिरोभिः—a happy idea.

It is considered quite auspicious to offer prayers in a temple, when one is starting on a long travel. If the prayer is not offered at the time of the start, every opportunity that presents itself on the way is at least availed of, even when the object of the travel is not a pilgrimage. Hence the Hamsa is directed to join his prayers to those of the devotees already assembled in the temple of Venkateswara (of peculiar interest to Venkatanatha, our poet).

The Sanskrit poets have always revelled in harmoniously blending the beautiful in Nature with the beautiful in the human and in the divine. One of the finest of devices which they generally employ for this noble end is what the writers on Sanskrit poetics term as *Dhwani*. A suggestion is thrown out by a central word or two in the piece, and it works itself out into a beautiful picture in the reader's mind, apart from, or distantly associated with, the idea in the context. The wonderful pliability of the words, coupled with a few well-recognized conventions, infinitely enhances the adaptability of the language in the hands of a skilled poet, for such a pleasing effect. Certain objects are always spoken of in the feminine, and certain others in the masculine, as we already saw in the case of the Cloud and its Lightning. And a dexterous handling of such words does throw out a happy suggestion, here and there, indicative of some picture or other of the poetic experiences in the nobler sexual or other human relations. One such happy ध्वनि we have in the description of the river Suvarnamukhari.

Rama has no doubt that, while his messenger is about to leave Seshadri, his eyes would be riveted on the inviting sands of the Suvarnamukhari, which flows a few miles to the south thereof, in a maidenly gait, carrying in its waves fresh flowers from trees on either of its banks, as though for the worship of Sri Kalahastiswara, farther down,

स्तोकोन्मग्नस्फुरितपुलिनां त्वन्निवासेच्छयेव  
द्रक्ष्यस्यारात् कनकमुखरां दक्षिणामञ्जनाद्रिः ।  
आसन्नानां वनविटपिनां वीचिहस्तैः प्रसूना-  
न्यर्चाहेतोरुपहरति या नूनमर्धेन्दुमौलेः ॥

This happy picture of the river suggests to our mind a still happier picture of a young woman in love, who, fresh from her bath, wends her way to the temple of her favourite god with an offering of flowers held in her palms in all devotion, and who, as if her prayers have been already answered, meets her very lover on the way and invites his looks of love, on her rounded features skilfully exhibited to advantage, as though all unconscious.

The Hamsa will not have the strength of mind to pass the beautiful river, without for a time enjoying himself on her sands. Even if he should, with an effort, suppress his ardent desire for the moment, it is sure to hang heavily in his heart, to the detriment of the errand he is on. Therefore it is that Rama wisely advises him to spend some joyous moments, besporting himself undisturbed on the cool sands of the river, even as happy lover forgets himself in the bewitching arms of his love, in a delightfully secluded spot.

निर्विश्यैनां निभृतमनमिव्यक्तमञ्जुप्रणादो  
मन्दाधृतः पुलिनपवनैर्वञ्जुलामोदगर्भैः ।  
अव्यासङ्गः सपदि पदवीं संश्रयान्यैरलङ्घ्यः ।

When once his heart's desire is gratified, there is no danger of his mind ever straying away from the sacred mission in hand. That he may not linger too long on the sands of the river even after a hearty enjoyment thereof, Rama finds it expedient to administer a gentle warning of a danger to his person, वन्दीकुर्युस्तवसतयो मा भवन्तं किराताः, since nothing else seems to be effective under such circumstances. But in the sister poem, though the Yaksha feels that several sights may attract the eyes of his messenger to the serious detriment of his mission, he simply reconciles himself to the situation, and leaves it to the good sense of the messenger with but a mild reminder that

मन्दायन्ते न खलु सुहृदामभ्युपेतार्थकृत्याः ।

On entering the tract of the country known as Tundira Mandala, the first to attract the attention of the Hamsa will be its premier city, Kanchi,

which is but the *Kanchi* (the golden girdle) of the Goddess of the Earth on which rest always riveted the amorous looks of her Lord, Hastisailesa, to the exclusion of all other objects of interest. There the Hamsa will perhaps recognize the Goddess, Saraswati, who according to a local legend assumed the form of a river and flowed in seven different torrents to destroy a sacrifice begun without her by her husband Brahma whose trusted vehicle was the great founder of *his* line of water-birds.

स्वामिनीवः कवीनां वेगासंज्ञां वहति महतीं बल्लभा पद्मयोनेः ।

There is a suggestion in the line that Saraswati is the patron deity of the poets. There is again another suggestion in the first part of the stanza. The words सप्तभेदैः, वर्णस्तोमैः परिणता, स्वच्छस्वादुप्रसरसुभगा, as applied to the river, indicate the scientific truth of the white colour of the sun's rays being possible of separation into the seven prismatic colours. The legendary seven horses of the Sun's chariot are but an allegorical presentation of the same truth.

After a sacred bath in the Saraswati tank, the Hamsa is promised an internal शुद्धि to correspond to the external one he is already fortunate in.

वक्ष्यस्यन्तर्वहिरपि परां शुद्धिमक्षेपणीयाम् ।

In this connection, it is worthy of note that a like reformation is promised to the cloud by Kalidasa's Yaksha too. Strange to say, the sacred waters there too go by a similar name (those of the river Saraswati). But the cloud, which is but dark externally, is to rest satisfied with only an internal शुद्धि as against the fortune of the Hamsa.

अन्तश्शुद्धस्त्वमपि भविता वर्णमात्रेण कृष्णः ।

The swans are supposed to be in fear of the rain-clouds. Therefore it is that Rama gives a humorous hint to his messenger, that he need not hesitate to approach on the top of the Hastisaile the dark cloudlike figure of Sri Varadaraja with his lightning-like consort Lakshmi, mistaking Him for a rain-cloud. Once there, he will have an opportunity for a good turn, if the God be then strolling about in His garden in company with His spouse. Let Him be served in the best way suited to the occasion.

व्यक्तो बालव्यजनवपुषा वीजयेस्तं त्वमेव ।

Such a rare opportunity of service to the Lord of the Universe should not be let slip inadvertently.

A similar service enjoined on the Megha in the sister poem is undoubtedly the inspirer of the service here. The chivalrous solicitude of Sambhu to the tender susceptibilities of his consort Gauri which obliges him to give up his dear भुजगवलयं, the suggested beauty of Mount Kailas in the midst of the wild grandeur of the lofty Himalayas, and the selection of Gauri, the

Mother of the Universe, as the object of service as against the masculine Sambhu, give a peculiar poetic flavour to the superfine stanza of Kalidasa

दित्वा तस्मिन् भुजगवलयं शम्भुना दत्तहस्ता, etc.,

when compared to which, we are constrained to say, Venkatanatha's

मध्वासत्तं सरसिजसिखं खिन्नमालम्बमानः, etc.

palls on our ears.

Some two experiences are rather prominently referred to in more than one place, in the *Hamsasandesa*. One is the somewhat envious and unchivalrous treatment of a really good poet by some unscrupulous contemporaries of doubtful virtues. From his own life it is gathered that Venkatanatha was not a stranger to such experiences. The other is the splendour of the then royal processions that must have had a lasting spectacular effect on the humbler souls, not given to much material prosperity. In as many as three places the first is referred to. Rama holds out to his messenger the prospect of a pardonable pride at the sight of the now forced silence of the peacocks which were once eloquent in his absence from the land (वाचालानामिव जडाधियां सत्कवौ दूरयति ।). Again while crossing the forest between Chola and Pandya, awfully noisy on account of the presence therein of myriads of crickets, the Hamsa is advised to maintain a dignified silence, for शब्दायन्ते नखलु कवयस्सन्निधौ दुर्जनानाम् । And last but not least, is the unenviable life of Sita in the Asokavanika, which suggests to the mind of Rama the fate of the words of a good poet in a company of the wicked (सूक्तिं रम्यां खलपरिसरे सत्कवेः कर्त्यमानाम् ।).

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## SURYAPRAGNAPTI.

BY DR. R. SHAMA SASTRY, B.A., PH.D., M.R.A.S.

(Continued from Vol. XVIII, No. 2.)

### The Nakshatras and Their Zodiacal Circle.

THE reason why we divide the zodiacal circle into 109800 divisions is this :—

There are three kinds of stars ; those that are of complete day and night area, those that are of one-half area and those that are of  $1\frac{1}{2}$  area. Those that are of complete area are fifteen as :—

- |                    |                   |                 |
|--------------------|-------------------|-----------------|
| 1. Śravaṇa         | 6. Kṛittika       | 11. Hasta       |
| 2. Dhanishṭha      | 7. Mṛigaśirah     | 12. Chitra      |
| 3. Pūrvābhādrapada | 8. Pushya         | 13. Anūrādhā    |
| 4. Revati          | 9. Magha          | 14. Mūla        |
| 5. Aśvini          | 10. Pūrvaphalguni | 15. Pūrvāshāḍha |

Those that are of one-half area are six :—

- |                |             |
|----------------|-------------|
| 1. Śatabhishag | 4. Āślesha  |
| 2. Bharanī     | 5. Svāti    |
| 3. Ārdra       | 6. Jyēshṭha |

Those that are of  $1\frac{1}{2}$  area are also six :—

- |                     |              |
|---------------------|--------------|
| 1. Uttarābhādrapada | 4. Rohiṇi    |
| 2. Uttaraphalguni   | 5. Punarvasu |
| 3. Uttarāshāḍha     | 6. Viśākha   |

Now in conformity with the diameter of the area of each of the stars, we divide the whole day into 67 parts and assign 67 parts in full to each of the stars having complete area. There being 15 such stars, the number of parts of them all comes to

$$67 \times 15 = 1005 \text{ parts.}$$

Those that are of  $\frac{1}{2}$  area give

$$\frac{67}{2} \times 6 = 201 \text{ parts.}$$

Those of  $1\frac{1}{2}$  area give

$$100\frac{1}{2} \times 6 = 603 \text{ parts.}$$

Abhijit gives

$$21 \text{ parts.}$$

Total 1830 parts.

This is for half a circle. So we multiply this by 2 to have the divisions of a complete circle. Hence the product comes to  $1830 \times 2 = 3660$ , i.e., 3660 parts of a whole divided into 67 parts. Reducing them to Muhurtas we have  $3660 \times 30 = 109800$  parts of a muhurta divided into 67 parts.

### The Nakshatras and New Moons.

Now there are two sets of stars, one set to the south of Meru and the other set to the north of Meru. Hence two sets of each of the 28 stars. The

two Abhijits come in contact with the moon only in the morning on the 44th new moon day in each cycle. This is explained by the following ancient Karaṇa verse :—

If we are to find out the number of tithis or lunar days in the middle of a cycle, we multiply the number of past lunar months by 30 and divide the product by 62. Then we multiply the remainder by 61 and divide the product by 62. The remainder will denote the measure. Of the tithis on the day for example :—

Now 44th new moon means 43 lunar months and a Parva or half a lunar month.

∴ The number of tithis are  $43 \times 30 + \frac{1}{2} \times 30 = 1305$ . Dividing this by 62 we have  $\frac{1305}{62} = 21 \frac{3}{62}$ . We reject 21 and take the remainder 3 and multiplying it by 61 divide it by 62. Hence we have  $3 \times \frac{61}{62} = 2 \frac{59}{62}$ . We reject 2. Hence we say  $\frac{59}{62}$  parts are occupied by the new moon tithi on that day.

We have already explained the Karaṇa method to find out the star on new moon or full moon days. Here for example we employ the same constant  $66 + \frac{5}{62} + \frac{1}{67}$ . Multiplying this by 44, we have  $2904 + \frac{220}{62} + \frac{44}{67}$ . From this we deduct  $442 \frac{46}{62}$  being the correction for stars from Punarvasu to Uttarāshāḍha. Then what remains is  $2462 + \frac{174}{62} + \frac{44}{67}$ . From this we take as many complete revolutions as possible, one revolution being equal to  $819 + \frac{24}{62} + \frac{66}{67}$ .

Thus removing three revolutions we have  $6 + \frac{37}{62} + \frac{47}{67}$  as remainder.

Hence we may say that the 44th new moon takes place when in the Abhijit star there have elapsed 6 muhūrtas, 37 sixty-secondths of a muhūrta and 47 sixty-sevenths of one sixty-secondth part of a muhūrta.

Now with regard to Lakṣhaṇa samvatsaras or ideal years :—These are of five kinds : Nakṣatra, lunar, Karma or Ritusamvatsara, solar, and the intercalary lunar year. The ideal Nakṣatra year is that in which the full moons terminate the moon's stay at the close of the month in the area of that star which lends its name to the month, as for example Āshāḍhi, i.e., the month in which the moon completes his stay in the Āshāḍha star at the close of the month. Likewise the characteristic of Nakṣatra year must also be such that its months correspond not only with the stars, but also with the seasons which correspond to the months such as Āshāḍha with hot season. That year in which the stars and the months indicated by the stars of month-names are at divergence and in which heat, cold, and disease cause much suffering is called the lunar year by ancient teachers. The characteristic or Lakṣhaṇa karma-samvatsara is that in which trees produce untimely fruits and flowers. The characteristic solar year is that in which agricultural produce and water are on a par and conducive to the well-being of the

people. That year in which all tanks, lakes and pits become filled with water is styled characteristic intercalary lunar year by ancient teachers.

Now with reference to the Saturn year:—

This is of twenty-eight kinds, such as Abhijit Saturn year, Śravaṇa Saturn year, up to Uttarāśāḍha Saturn year. That year in which the Saturn unites with Abhijit is called Abhijit Saturn year; and so on with other stars. The great planet Saturn completes the circle of stars in the course of 30 years. This year, *i.e.*, the cycle of 30 years, is called Saturn year.

#### The Gates of the Stars.

Those stars which do good to a man going towards the east are termed stars of eastern gates. They are the seven stars from Kṛittika. Anūrādha and other seven stars are said to be of southern gates. There are others who differ in this view and term other stars to be of eastern or southern gates.

Just as there are said to be two suns and two moons in the Jambudvīpa, so it is said that there are 56 stars.

#### The Area of Stars.

Stars may be of whole area, half area, or one and half area. Those stars which move through the same area as the moon moves in a day are said to be of whole area. They are Śravaṇa, Dhanishṭha, Pūrvabhādrapada, Revati, Aśvini, Kṛittika, Mṛigaśīrah, Pushya, Magha, Pūrvaphalguni, Hasta, Chitra, Anūrādha, Mūla, and Pūrvāśāḍha.

Those which move half the area the moon moves are of half area and they are Śatabhishak, Bharanī, Ārdra, Āślesha, Svāti and Jyēshṭha. Those which have  $1\frac{1}{2}$  area are Uttarabhādrapada, Uttaraphalguni, Uttarāśāḍha, Rohiṇi, Punarvasu, and Viśākha.

The day is divided into 67 parts in order to determine the area of the stars. Those stars which have whole area are given  $\frac{1}{67}$  part of the circle each. The stars of half area,  $1/33\frac{1}{2}$  part each. The stars of  $1\frac{1}{2}$  area are assigned  $1/100\frac{1}{2}$  part each. For Abhijit,  $\frac{2}{3}$  parts.

The stars of whole area are 15. Hence  $67 \times 15 = 1005$  parts. Those of half area are 6. Hence  $6 \times 33\frac{1}{2} = 201$ . Those of  $1\frac{1}{2}$  area are 6. Hence  $6 \times 100\frac{1}{2} = 603$ . Abhijit has 21. Hence the sum of all these = 1830 parts contained in half the circle. Similar parts in the other half. Total parts = 3660, *i.e.*, day parts moved through by the stars in the northern and southern circles of Meru by 56 stars.

Thus Jaina astronomers believe in two sets of 28 stars corresponding to their two suns and two moons.

Now regarding the question which of the stars combine with the moon in the morning, which in the evening, and which at both times, Mahāvīra says that there is no such hard and fast rule. He says that of the 56 stars



the two Abhijits combine in every cycle with the moons only in the morning on the 44th new moon day. The proof of this is as follows :—For this we have to know the process of ascertaining the Tithis, as stated by ancient teachers :—We multiply the number of all the elapsed lunar months by 30 and divide it by 62. Then we multiply the remainder by 61 and divide it by 62. The remainder is the measure of the tithi.

For example :—

The tithi measure on 44th New Moon is to be ascertained. Here 43 lunar months are past and also one Parva. Hence 43 is to be multiplied by 30 and 15 of the additional parva to be added to it.

$43 \times 30 + 15 = 1305$ . Now  $\frac{1305}{62} = 21\frac{3}{62}$ . Here take the remainder 3 and multiplying by 61 divide the product by 62. Hence  $3 \times \frac{61}{62} = \frac{183}{62} = 2\frac{59}{62}$ ; that is  $\frac{59}{62}$  parts of day is the measure of the New Moon on the day.

The method of finding out the star on the new moon or full moon day has already been noticed. The constant employed here is  $66 + \frac{5}{62} + \frac{1}{67}$ . Multiply this by 44 for determining the star on the 44th new moon.  $44 \times (66 + \frac{5}{62} + \frac{1}{67}) = 2904 + \frac{220}{62} + \frac{44}{67}$ . Then deduct  $442\frac{46}{62}$  from the above for correction for stars from Punarvasu to Uttarāshāḍha. Then remains  $2462 + \frac{174}{62} + \frac{44}{67}$ . Then deduct again  $819 + \frac{24}{62} + \frac{66}{67}$  from it for correction for the stars from Abhijit onwards. Here we multiply the quantity to be deducted by 3 to include in it the three-fold correction. Hence  $(2462 + \frac{174}{62} + \frac{44}{67}) - 3(819 + \frac{24}{62} + \frac{66}{67}) = 6 + \frac{87}{62} + \frac{47}{67}$ .

That is, the new moon is completed when so much has elapsed in the Abhijit star.

Now Gautama asks Mahāvīra where the first full moon of the 62 full moons and 62 new moons in a cycle gets completion. Mahāvīra says that a circle through all the stars inclusive of the point where the final full moon of the past cycle is completed should be drawn and divided into 124 equal parts. At the 32nd division from the point of the last full moon, the first full moon will be completed. Likewise the 2nd full moon will be completed at the 32nd division of the 124 divisions, into which the circle from the point of first full moon through all the stars is divided. Similarly the 3rd and the 12th also. The 12th from the first is the 9th from the 3rd. Now  $9 \times 32 = 288$ . That is the 288th division repeatedly counted in the circle divided into 124 parts.

The proof of this is as follows :—Describe a circle so that the point of the final 62nd full moon of the past cycle is on the circumference. Divide it into 124 parts, the point of the final full moon being the first division. Then the 32nd from it is the place of the first full moon. Now 62 are the

full moons in a cycle. Hence  $62 \times 32 = 1984$ . Divide this by 124. The quotient is 16. That is, the moon goes 16 rounds in the circle to make 62 full moons.

Now regarding the question where the last full moon of the cycle is completed, Mahāvīra graphically describes it as follows:—

Imagine a circle in the sky above the Jambudvīpa. Divide this circle into 4 parts by drawing diameters. Then make thirty-one divisions in each of the four quadrants by drawing diameters N.-E. to S.-W. and S.-E. to N.-W. Here in S.-E. quadrant there are 31 divisions. Of these the moon completes 27 divisions and  $\frac{13}{31}$  parts or kalas of the 28th division, leaving  $\frac{3}{31}$  divisions and  $\frac{2}{31}$  of the 28th division also without completing when the final 62nd full moon is made.

### The Sun and the Full Moons.

Now regarding the question, at what place does the sun complete the first full moon, we say that he does so at the 94th division from that point where he completed the final full moon of the previous cycle, the circle being divided into 124 divisions. The reason for this is as follows:—

The lunar month is  $= 29 \frac{8}{31}$  days. Hence before the sun completes the 30th day, i.e., when there are  $\frac{30}{31}$  parts of a day more to be completed, the full moon takes place.

Regarding the 2nd full moon we proceed similarly:—He completes it at the 94th division from the point of the first full moon, the circle being divided into 124 divisions.

Similarly for the 3rd and the 12th full moon.

The 12th full moon from the 1st is the 9th full moon from the 3rd. Hence  $9 \times 9 = 81$ , i.e., 81st division, in other words 102nd division from the point of the 3rd full moon,  $(6 \times 124) = 744$ , 6 times 124 divisions being completed.

Similarly the final full moon at  $62 \times 94$ th division. Now  $62 \times \frac{94}{124} = 47$ , that is, the same place where he completed the final full moon of the previous cycle. Here also there will remain  $\frac{3}{31} + \frac{2}{31 \times 20}$  parts of the 124 divisions untraversed by the sun.

### The Moon and the Sun and the New Moons.

Now in reply to the question, where does the moon complete first new moon, we say that at the 32nd division from the point of the final new moon of the previous cycle, the moon completes the first new moon in the current cycle, the circle being divided into 124 divisions as in the case of full moons.

Similarly the 2nd, the 3rd and the 12th and the like.

Similarly the sun also completes the new moon at the 94th division from the point of the previous new moon, the circle being divided into 124 divisions as in the case of full moons.

### The Nakshatras and the Full Moons.

Now regarding the question, in what Nakshatra does the moon complete the 1st full moon, we say in the Dhanishṭha, as already stated, when  $3 + \frac{19}{62} + \frac{65}{67}$  muhūrtas still remain in the star. This is ascertained as follows:—

The constant for Nakshatras and full moons is  $66 + \frac{5}{62} + \frac{1}{67}$ . Multiply this by the number of the full moon, 1. The product is the same. Then deduct from this  $9 + \frac{24}{62} + \frac{66}{67}$ , being the correction for Abhijit. Then deduct 30 muhūrtas for Śravaṇa. There remain 26 muhūrtas. This being deducted from 30 muhūrtas of Dhanishṭha, we have still  $3 + \frac{19}{62} + \frac{65}{67}$  muhūrtas in Dhanishṭha.

Now regarding the sun, the Nakshatra, and the first new moon the reply is that he completes it in the Pūrvaphalguni, when there remain  $28 + \frac{88}{62} + \frac{32}{67}$  muhūrtas in that star.

This is ascertained as follows:—

$$(66 + \frac{5}{62} + \frac{1}{67}) \times 1 - (19 + \frac{48}{62} + \frac{33}{67}) \text{ correction for Pushya} = 46 + \frac{23}{62} + \frac{35}{67}.$$

Then deduct 15 muhūrtas for Āślesha and 30 for Magha. Then there remains  $1 + \frac{23}{62} + \frac{35}{67}$ , i.e., when there remain  $28 + \frac{88}{62} + \frac{32}{67}$  in Pūrvaphalguni, the sun completes the new moon. The Pushya correction is made for the reason that at the close of the cycle only  $\frac{28}{67}$  parts of Pushya are traversed by the sun, leaving  $\frac{44}{67}$  parts still to be traversed.  $\frac{44}{67}$  parts are  $= \frac{44}{67} \times 30 = \frac{1320}{67} = 19 + \frac{48}{62} + \frac{33}{67}$ .

These are solar muhūrtas.

13 days of 30 such muhūrtas  $+ \frac{12}{80}$  of a day is the duration of the sun's stay in a star.

Similarly for 2nd full moon:—

$(66 + \frac{5}{62} + \frac{1}{67}) \times 2 - (9 + \frac{24}{62} + \frac{66}{67}$  for Abhijit  $+ 30$  for Śravaṇa  $+ 30$  for Dhanishṭha  $+ 15$  for Śatabhishak  $+ 30$  for Pūrvābhādra)  $= 17 + \frac{47}{62} + \frac{3}{67}$ , i.e., when so much yet remains in Uttarābhādra the 2nd full moon is completed. Likewise for the 2nd full moon and the sun:—

$(66 + \frac{5}{62} + \frac{1}{67}) \times 2 - (19 + \frac{48}{62} + \frac{33}{67}$  for Pushya  $+ 15$  for Āślesha  $+ 30$  for Magha  $+ 30$  Pūrvaphalguni)  $= 27 + \frac{26}{62} + \frac{36}{67}$ , i.e., when so much has elapsed in Uttaraphalguni, the sun completes the same full moon.

Similarly for the 3rd full moon and the star with the moon or the sun may be ascertained. Also for 62nd full moon and the star with the moon or the sun.

In the last case there remain in Pushya  $19 + \frac{4}{8} \frac{8}{2} + \frac{3}{8} \frac{3}{7}$  muhūrtas when the sun completes that final full moon.

Likewise in the case of new moons :—

$(66 + \frac{5}{8} \frac{5}{2} + \frac{1}{8} \frac{1}{7}) \times 1 - (22 + \frac{4}{8} \frac{4}{2}$  for Punarvasu + 30 for Pushya) =  $13 + \frac{2}{8} \frac{1}{2} + \frac{1}{8} \frac{1}{7}$ , i.e., when so much out of the 15 muhūrtas of Āślesha has elapsed, the first new moon is completed by the sun.

Likewise in the case of the 2nd, 3rd, 12th or the 62nd new moons of a cycle, the last new moon occurring in the Punarvasu star.

### Motion of the Stars and the Planets.

The stars are quicker than the planets; among the latter the sun is slower than the moon.

The commentator traverses the same ground here he has already done before indicating durations of the moon's or the sun's stay with each of the 28 stars, then refers again to two suns, two moons and two sets of 28 stars.

The teacher now proceeds to speak of the beginnings of the various years of a cycle.

The closing point of the previous years is the initial point of the succeeding years. For example, 2nd year will be completed in the close of the 24th full moon. Now the parva constant multiplied by 24 *minus* the period of the sidereal revolutions of the moon or the sun as the case may be in a year together with the corrections for the stars concerned gives the beginning, as :—

$(66 + \frac{5}{8} \frac{5}{2} + \frac{1}{8} \frac{1}{7}) \times 24 - (819 + \frac{2}{8} \frac{4}{2} + \frac{6}{8} \frac{6}{7}$  being one Nakshatraparyāya) =  $765 + \frac{9}{8} \frac{5}{2} + \frac{2}{8} \frac{5}{7}$ . From this deduct  $744 + \frac{2}{8} \frac{4}{2} + \frac{6}{8} \frac{6}{7}$  being the correction for stars from Abhijit to Mūla.

The remainder =  $22 + \frac{8}{8} \frac{2}{2} + \frac{2}{8} \frac{6}{7}$ , i.e., at the beginning of the second lunar year there remain  $7 + \frac{3}{8} \frac{5}{2} + \frac{4}{8} \frac{1}{7}$  muhūrtas in Pūrvāshāḍha.

Similarly for the solar year :—

$(66 + \frac{5}{8} \frac{5}{2} + \frac{1}{8} \frac{1}{7}) \times 24 - (819 + \frac{2}{8} \frac{4}{2} + \frac{6}{8} \frac{6}{7}$  being one sidereal revolution of the sun) =  $765 + \frac{9}{8} \frac{5}{2} + \frac{2}{8} \frac{5}{7}$ . Deduct from this  $19 + \frac{4}{8} \frac{8}{2} + \frac{3}{8} \frac{3}{7}$  correction for Pushya and  $744 + \frac{2}{8} \frac{4}{2} + \frac{6}{8} \frac{6}{7}$  for stars from Āślesha to Ārdra. Then there remain  $2 + \frac{2}{8} \frac{6}{2} + \frac{6}{8} \frac{0}{7}$ , i.e., the second solar year commences when there remain in the Punarvasu star  $42 + \frac{3}{8} \frac{5}{2} + \frac{7}{8} \frac{7}{7}$  muhūrtas.

Likewise for other years.

Then the teacher again speaks of the various years, sidereal, lunar, Sāvana and solar, and determines their respective lengths.

### Other Cycles.

The lunar year and also the solar year commence at the same point or day and close at the same point or day once in every cycle of 30 years which is equal to 6 cycles of 5 years each. For the lunar gains  $6 \times 2$  months and thus completes one complete intercalary year.

Similarly the solar, the Sāvana or seasonal, the lunar, and the Nakshatra years begin on the same day and close on the same day or simultaneously begin and close once at the close of 12 cycles of 5 years each, i.e., 60 years.

It must be noted here that the lunar is really equal to  $354 + 5m. + \frac{50}{62}m.$

For in a cycle of 5 years there are

60 Solar months.

61 Ritu months.

62 Lunar months.

67 Nakshatra months.

Hence  $60 \times \frac{1}{12} = \frac{61}{12} \times 12 = \frac{62}{12} \times 12 = 67 \times \frac{1}{12}$ , when the numerator denotes number of cycles of 5 years each and the denominator stands for 12 months of a year. In less than 12 cycles of 5 years each all of them will not be complete years.

Similarly the intercalary lunar year, the solar, the Ritu or Sāvana, the lunar and the Nakshatra years will simultaneously begin and close once in a great cycle of 156 cycles of 5 years each; for  $156 \times 5$  years are equal to 744 intercalary lunar years, 780 solar, 793 Ritu years, 806 lunar, and 871 Nakshatra years.

### Imperfect Cycle.

If it be asked whether a cycle made of the five years, viz., 1 Nakshatra year, 1 lunar, 1 Ritu year, 1 solar, and 1 intercalary, would be perfect, the answer should be 'no'; for

The Nakshatra year =  $327\frac{5}{7}$  days.

The lunar year =  $354\frac{1}{2}$  "

The Ritu year = 360 "

The solar " = 366 "

The intercalary lunar = 383 days  $21\frac{8}{62}$  muhūrtas.

Total = 1790 days +  $51 \times \frac{30}{7}$  muhūrtas +  $12 \times \frac{30}{62}$  muhūrtas  
+  $21\frac{8}{62}$  muhūrtas.

= 1790 days +  $27\frac{6}{62}$  muhūrtas +  $1\frac{580}{67}$  muhūrtas.

= 1791 days + 19 muhūrtas +  $(\frac{6}{62} + \frac{56}{67})$  muhūrtas.

= 1791 days + 19 muhūrtas +  $\frac{57}{62} + \frac{55}{67}$  muhūrtas.

Now a perfect cycle is = 1830 days.

Hence 1830 days =  $(1791 + 19 \text{ muhūrtas} + \frac{57}{82} + \frac{55}{87} \text{ muhūrtas}) = 38 \text{ days} + 10 \text{ muhūrtas} + \frac{4}{62} + \frac{12}{87} \text{ muhūrtas}$  is what is required to make that cycle a complete or perfect cycle.

### The Seasons.

The rains, the autumn, the dewy, the spring, and the summer.

These are the seasons. They are of two kinds, the solar and the lunar. The solar season is equal to two solar months = 61 days. We speak of the lunar seasons later on. The seasons commence with the Āshāḍha month though the cycle of 5 years commences with the 1st day of the dark half of the month of Śrāvaṇa. Hence we count the number of parvas elapsed since the beginning of the cycle and multiply it by 15 in order to reduce them to lunar days. Then we add the remaining days above the parva up to the day in question. Then we deduct the Avama days at the rate of  $\frac{1}{62}$  per day. Then we double the remainder and add again 61. Then we divide the sum by 122 and the quotient by six; the latter quotient is the number of expired Ritus and the remainder divided by two gives the days of the current season.

For example we are going to determine the season on the 1st Dīpōtsava day.

The number of parvas from the beginning of the cycle on 1st day of the dark half of Śrāvaṇa to the day in question are 7. So  $7 \times 15 = 105$  lunar days. Now  $105 \times \frac{1}{62} =$  nearly 2, i.e., two Avama rātris. Deducting this from 105, we have 103.

$$103 \times 2 = 206. \quad 206 + 61 = 267.$$

$$\frac{267}{122} = 2 + \frac{23}{122}.$$

As two is not divisible by two, we leave it.

$$\frac{23}{2} = 11\frac{1}{2}.$$

Now counting the seasons from Āshāḍha, we may say two seasons are past and that 11 days have elapsed in the third season.

Now with regard to the question which season closes with what lunar day, this is the saying of ancient teachers :—

Take the number of the seasons in question and double it and deduct one from it. Then double it again. Then keep this product in two rows. One indicates the number of parvas; and the other being reduced to half shows the number of lunar days (tithis).

Now regarding the question, on what lunar day the first season in a cycle happens, we apply the formula as follows :—

Number of seasons = 1.

$\therefore 1 \times 2 - 1 = 1$ . Again  $1 \times 2 = 2$ .

Keeping on two rows, as

2                      2, we halve one of them.

The result is 2 and 1.

That is, 2 parvas have elapsed and that on the Pratipat day the first Ritu closed.

Similarly for the 2nd season—

$2 \times 2 - 1 = 3$ .

$3 \times 2 = 6$ .

6                      6. Halving one

we have 6.....3.

That is, 6 parvas have elapsed and that on the 3rd day the second season has closed.

To this end there is also another saying as follows :—

With regard to the solar seasons months should be considered with Āshāḍha and that tithis from Bhādrapada.

The 1st season closes with the end of the Bhādrapada. Then leaving one month in the middle, the second season closes with the end of Kārtika and third leaving one month closes with the next month and so on.

The 1st season closes on the Pratipat day.

The 2nd                      „                      3rd day.

The 3rd                      „                      5th „

The 4th                      „                      7th „

The 5th                      „                      9th „

The 6th                      „                      11th „

The 7th                      „                      13th „

The 8th                      „                      15th „

All these close in the dark half of the months.

Then the 9th season closes on the 2nd day white half.

the 10th                      „                      4th „                      „

the 11th                      „                      6th „                      „

the 12th                      „                      8th „                      „

the 13th                      „                      10th „                      „

the 14th                      „                      12th „                      „

the 15th                      „                      14th „                      „

These seven close on the white half of the month. All these 15 seasons occur in half a cycle. Likewise 15 more occur in the other half.

In order to determine the stars with the moon or the sun at the close of a season, there are some Kāraṇa verses of ancient teachers. I am going to explain them now :—

$\frac{305}{1\frac{3}{4}}$  parts of a day is the constant used in determining the star with the moon or the sun at the close of a season. This is multiplied by the number of the required season. The number of the season for the first is 1 and that of the seasons from 2 to 30 has to be doubled and added to the first. With this sum the constant is to be multiplied in the case of the second and other seasons up to 30. Then from the product thus obtained we have to deduct corrections for stars. 67 is to be deducted for stars of half area;  $67 \times 2 = 134$  is to be deducted for stars of whole area; and  $67 \times 3 = 201$  for stars of one and half area. In the case of the sun the corrections must begin with Pushya onwards and in the case of the moon with the Abhijit onwards. Here correction for Pushya is 88 (in addition) and 42 for Abhijit. Then the remainder shows the star with which the moon or the sun is in contact at the close of the season.

Example :—

Now in the case of the first season, we multiply 305 by one. Then the product is the same. Deduct 42 for Abhijit from this. The remainder is 263. Then deduct 134 for Śravaṇa from this. Then there remains 129. From this the correction for Dhanishṭha cannot be deducted. Hence we conclude that having traversed  $\frac{1\frac{2}{3}}{1\frac{3}{4}}$  parts of Dhanishṭha the moon completes the first season.

Likewise for the second season :—

Constant  $305 \times 3 = 915$ .  $915 - 42$  for Abhijit = 873.

Deduct from this 134 for Śravaṇa + 134 for Dhanishṭha + 67 for Śatabhishak + 134 for Pūrvābhādra + 201 for Uttarābhādra + 134 for Revati.

Then there remains 69. Hence we say that having traversed  $\frac{69}{1\frac{3}{4}}$  parts of Aśvini, the moon completes the second season.

So for the 30th season :—

The constant is 305; the season number multiplied by two and added to one is  $29 \times 2 + 1 = 59$ .

Hence  $305 \times 59 = 17995$ .

Now one sidereal revolution (Nakshatraparyāya) = 3660.

∴ 4 revolutions = 14640.

Hence  $17995 - 14640 = 3355$ .

Deduct from this 3225, being the correction for stars from Abhijit up to Mūla. Then there remains 130. That is the moon completes the 30th season after having traversed  $\frac{1\frac{8}{3}}{1\frac{3}{4}}$  parts of Pūrvābhādra.



Likewise for the sun :—

$305 \times 1 - (88 \text{ for Pushya} + 67 \text{ for Āślesha} + 134 \text{ for Magha}) = 16$ .  
Hence we say that after having traversed  $\frac{16}{134}$  parts of Pūrvaphalguni the sun completes the 1st season.

Likewise for the second season :—

$305 \times 3 - (88 \text{ for Pushya} + 67 \text{ for Āślesha} + 134 \text{ for Magha} + 134 \text{ for Pūrvaphalguni} + 201 \text{ for Uttaraphalguni} + 134 \text{ for Hasta} + 134 \text{ for Chitra}) = 23$ . Hence we say that having traversed  $\frac{23}{134}$  parts of Svāti the sun completes the 2nd season.

Now for the 30th season :—

$$305 \times 59 - (4 \times 3660 = 14640) = 3355.$$

Now  $3355 - (88 \text{ for Pushya} + 3258 \text{ for stars from Āślesha to Mrigaśirah}) = 9$ .

Hence we say that having finished  $\frac{9}{134}$  parts of Ārdra the sun completes the 30th season.

### Lunar Seasons.

Now in one sidereal revolution of the moon, the lunar seasons are six. Hence in a cycle of 5 years which is equal to 67 sidereal revolutions of the moon there are  $6 \times 67 = 402$  lunar seasons.

In one lunar season there are  $4 \frac{87}{134}$  days.

The reason for this is as follows :—

One sidereal revolution of the moon = 6 seasons.

One revolution is =  $27 \frac{21}{134}$  days.

∴ One season =  $27 \frac{21}{134} \div 6 = 4 \frac{87}{134}$  days, as stated in the Kāraṇa verse of the ancient teachers.

The formula to determine the lunar seasons is as follows:—

Multiply by 15 the number of parvas that has elapsed from the beginning of the cycle. Then add the remaining number of days above the parvas, if any. Then deduct Avamarātras at  $\frac{1}{134}$  per day. Then multiply the remainder by 134 and add to the product 305 and divide the sum by 610. The quotient is the number of Ritus.

For example, we may desire to know the Ritu on the 5th day of the 1st parva from the beginning of the cycle. No parva has as yet been completed here. Hence take only the days, viz., 5. Deduct one from it. Remainder is 4. Multiply it by 134.

$$\therefore 4 \times 134 = 536.$$

Add to this 305. ∴  $536 + 305 = 841$ . Dividing this by 610 we have  $\frac{841}{610} = 1 \frac{231}{610}$ . Here 1 stands for the 1st season.

Taking the remainder 231, divide it by 134.

$\therefore \frac{231}{134} = 1\frac{97}{134}$ . Here 1 stands for days.

i.e., one day.

Now dividing 97 by 2 we get  $48\frac{1}{2}$  which stands for so many sixty-seventh parts. Hence we say that on the 5th day the Prāvṛit Ritu has expired and that one complete day of the second season and  $48\frac{1}{2}$  sixty-seventh parts of the second have also elapsed.

If it is desired to know what season there will be on the 11th day in the 2nd parva from the beginning of a cycle, we proceed as follows:—

1 parva elapsed  $\times 15 + 10$  days elapsed upto the 4th day = 25.  $25 \times 134 = 3350$ . Adding to this 305 we have 3655. Dividing this by 610, we have  $\frac{3655}{610} = 5\frac{605}{610}$ , where 5 stands for Ritus.

Now  $\frac{605}{134} = 4\frac{69}{134}$ , where 4 stands for days.

$\frac{69}{2} = 34\frac{1}{2}$  sixty-sevenths of a day.

That is, 5 seasons and 4 days and  $34\frac{1}{2}$  sixty-sevenths of a day have elapsed.

In order to determine the closing day of a lunar season the following method is taught:—

As in the case of solar seasons, multiply the constant  $\frac{305}{134}$  by one for the first and by  $(2 \times \text{number of seasons} + 1)$  for the 2nd and other seasons up to the last season; and divide the product by 134. The quotient is the number of lunar seasons expired.

If, for example, the day on which the 1st lunar season expires is sought to be known, we proceed as follows:—

The constant is  $\frac{305}{134}$ . Multiplying it by 1 we have  $\frac{305}{134} = 2\frac{37}{134}$ . Divide 37 by 2. We have  $18\frac{1}{2}$ .

Hence we say that after 2 days and  $18\frac{1}{2}$  sixty-sevenths of the third day the 1st lunar season attains completion.

Likewise for the 2nd Ritu:—

$$\frac{305}{134} \times 3 = \frac{915}{134} = 6\frac{111}{134} \quad (i)$$

$$\frac{111}{2} = 55\frac{1}{2} \quad (ii)$$

That is, that after 6 days and  $55\frac{1}{2}$  sixty-sevenths of the 7th day the second season attains completion.

Similarly for 402nd season:—

$$\frac{305}{134} \times 803 = \frac{244915}{134} = 1827\frac{97}{134} \quad (i)$$

$$\frac{97}{2} = 48\frac{1}{2} \quad (ii)$$

That is, the 402nd season will be completed when 1827 days and  $48\frac{1}{2}$  sixty-sevenths of the day after those days have elapsed.

There is also a formula taught by ancient teachers to determine the star with which the moon completes any one of his seasons.

The same constant  $\frac{805}{134}$  is multiplied by one for the 1st and by  $1 + 2 \times$  (number of seasons *minus* 1st) for the 2nd and other seasons. Then corrections for stars from Abhijit onwards are made. What remains then indicates the portion of the star.

Now for the star on the last day of the first season we proceed as follows:—

$$\frac{805}{134} \times 1 = \frac{805}{134}.$$

Then deduct from this 42 for Abhijit; then 134 for Śravaṇa. Then there remains 129. Dividing this by 2 we have  $64\frac{1}{2}$ .

That is, the 1st season is completed by the moon when  $64\frac{1}{2}$  sixty-sevenths of Dhanishṭha are passed.

Likewise for the 2nd season:—

$\frac{805}{134} \times 3 = \frac{915}{134}$ . Deducting from this 42 for Abhijit, 134 for Śravaṇa, 134 for Dhanishṭha, 67 for Śatabhishak, 134 for Pūrvābhādra, 201 for Uttarābhādra and 134 for Revati then there remains  $\frac{69}{134}$ . That the moon completes the 2nd season when  $\frac{69}{134}$  parts of Aśvini have elapsed.

Likewise for 402nd season:—

$$\frac{805}{134} \times 803 = 244915.$$

Now one paryāya or turn for all the 28 stars is 3660. Hence  $\frac{244915}{3660} = 66\frac{855}{3660}$ .

Now from 3355 we deduct 42 for Abhijit and 3082 for stars from Śravaṇa to Anūrādhā. Then there remains 231. Deduct from this 67 for Jyēshṭha + 134 for Mūla. There remains 30. Hence we say that after having traversed  $\frac{30}{134}$  parts of Pūrvāshāḍha, the moon completes the 402nd season.

(To be continued.)

# ANTHROPOMETRY OF THE KANIKARS OF TRAVANCORE.

BY L. A. KRISHNA IYER, ESQ., M.A., M.R.A.S.

ANTHROPOMETRY as a test of race stands much discredited in the eyes of some eminent anthropologists. Professor Sergi says that the method of indices is only a method in appearance and it inevitably leads to errors and can produce no satisfactory results. Professor Ridgeway thinks that these osteological differences are but foundations of sand and that physical type depends far more on environment. Lastly, O'Malley, the last Imperial Census Reporter, writes: "Of late years, Anthropometry as a test of race has begun to fall out of favour."

There is at the same time another body of scholars who rely on the absolute certainty of the nasal and cephalic indices, of hair and colour as permanent tests of racial distinction. Dr. Topinard, Sir William Turner, Sir Herbert Risley, and Doctor Thurston rely on the constancy of cranial measurements.

Doctor Thurston was the first to study the nasal index of the jungle and domesticated Kanikars who form a small hill-tribe in South Travancore. According to Bourdillon, those who live in the jungle are called Kanikars, while those living outside it are called Velanmar who have undergone some modifications as a result of contact metamorphosis.

Collignon formulates the theory that, in a given race, leptorhiny is in direct relation to stature. The more it is raised, the longer the nose. The lower the stature, the more the nose tends towards mesorhiny. Sir Herbert Risley also found from his experience of North Indian peoples that nasal index ranks higher as a distinctive characteristic than stature or cephalic index itself. This applies to South India also. Doctor Thurston's observations of the nasal index of the Kanikars are as follows :—

Type	Average nasal index	Maximum nasal index	Minimum nasal index
Jungle ...	84.6	105	72.3
Domesticated ...	84.2	90.5	70.8

It may be seen that the nasal index of the jungle Kanikars is higher than that of the domesticated Kanikars of the plains. As already pointed

out, this is an instance of a primitive short dark-skinned and platyrrhine type changing as a result of contact metamorphosis towards leptorrhiny.

There is remarkable correspondence between gradations of type as revealed by indices and, according to Sir Herbert Risley, the gradations of social precedence enable us to conclude that community of race and not community of functions is the real determining principle of the caste system. The Rig-Veda uses the word *anasa* (noseless) to the Dasyus or Daityas. It is possible to arrive at a definition of pre-Dravidian tribes of to-day from these sources. They are a short-statured, dolichocephalic and platyrrhine people, and these physical traits did not escape the observation of Puranic writers.

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# THE TAMIL KINGS AND THEIR GOVERNMENT.\*

BY PANDIT N. CHENGALVAROYAN.

## Introduction.

THE Sangam epoch in Tamil literary history is of the greatest interest and importance to a student of the ancient history of South India. The Sangam works portray, vividly, accounts of a highly civilized state of society, where the arts of war and peace had attained considerable development and perfection. They give us accounts of the civil administration of the ancient Tamil country, of its social life and religious practices, its political activities and commercial enterprises. They tell us about the great number of Cheras, Cholas and Pandyas who were ruling over their different kingdoms. Contemporary poets have extolled these kings for their military achievements and for their munificence as patrons of letters. The achievements of these people in economic and political spheres as well as in the world of letters were manifold.

The art of polity was rendered an exact science and in proof thereof it may be mentioned that no less than seventy chapters had been devoted to this interesting subject in that monumental work, *Kural*. Even in those days the science of military and naval warfare was highly developed in Southern India. Coastal and oceanic trade expanded to the farthest limits. 'The wealth and importance of the country attracted foreign merchandise to its ports, where trade in an international scale was carried on.' Ship-building and maritime activity received liberal encouragement and support at the hands of the rulers. Men of war existed, dockyards, harbours and lighthouses were built at *Muchiri* on the west coast and *Pukar* on the east coast and several other places.

## Object of the Paper.

The object of the paper is to contradict the view held by some western scholars who are of opinion that there was no Tamil literature before the ninth century A.D. In fact, all that was original and excellent in the literature of the Tamils was written before the ninth century. A careful perusal of some of the ancient Tamil poems would disclose the fact that they were composed as nearly as two thousand years ago and, that the Tamil country was prosperous under the unbroken sway of a long line of illustrious kings of the three dynasties, *viz.*, Chera, Chola and Pandya.

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\* A resumé of a paper read by Pandit N. Chengalvaroyan, Government High School, Malleswaram, Bangalore, at the All-India Oriental Conference (History Section) held at Allahabad on 7th November 1926. Mr. Chengalvaroyan attended the Conference as a delegate representing the Mysore State.

### Topography of the Tamil Country.

The portion south of the Vindhya mountains is known as South India or the Deccan. Long before the beginnings of its authentic history the branches of the great Dravidian race occupied it. The greater portion of it was known as *Tamilakam* or the Tamil country. The Tamil land was divided into three parts—Chera, Chola and Pandya Mandalams. Pandi Nadu corresponds to the whole of the modern Madura district. The capital of the Pandyas was Madura. It was a wealthy, populous and fortified city in the days of its glory. Korkai also was an important town of the Pandyas. Chola Nadu was also known as Punal Nadu. Uraiyur was its capital which is now a suburb of the modern town of Trichinopoly. *Pukar*, otherwise known as *Kavirip-pumpattinam*, was an important seaport of the Cholas. We have a full description of this town in the poems *Chilappathikaram* and *Pattinappali*. Vanchi or Karur was the capital of the Cheras. This was also planned after the model of Madura and Uraiyur and was charming to every visitor. Muchiri and Thondi were the flourishing seaports of the Chera Nadu.

### Trade and Commerce.

The products of the Tamil country seem to have attracted the merchants of distant lands. In the early centuries of the Christian era the Tamils carried on an active trade with western peoples like the Romans, Greeks, Arabs and Javanese. The Roman coins that were discovered in the Tamil Nadu support the truth of this statement. There is sufficient evidence to believe that numerous colonies of Roman subjects carrying on trade were settled in S. India during the first and second centuries A.D. This kind of busy commercial intercourse between the two nations lasted till very nearly the beginning of the sixth century A.D. The western merchants who visited the Tamil land were known as Yavanas and many references to these Yavanas can be found in the Tamil poems. These foreigners were enlisted by the Tamil kings for their army and some of these formed the king's bodyguard also. It is also said that there was a colony of these Yavanas at *Kavirip-pumpattinam*.

### The Three Dynasties.

As there is no definite chronology of South Indian history, we have to attach much importance to the Tamil classical works, such as *Purananuru*, *Padhirup-Pattu*, *Pathup-Pattu* and the commentary on *Irayanar Agapporul* and the like, which supply abundant materials for building up the political history of the Deccan. They give us a true picture of the countries as seen by the poets. The *Pandyas* formed a highly civilized race at a very early period and an account of their rule from the earliest times up to the seventeenth century gives us some idea of the commercial intercourse that existed

between the Pandyas and the western world, their suzerainty over the several powers of S. India, the expansion of their dominion and finally their decline. The Cheras, Cholas and Pandyas were collectively known as "The Three Kings". Apart from these kings there were several princes and chiefs who ruled over the extensive provinces of the Tamil land and were under the sway of one or the other of these kings. Some of the chiefs who were subordinate to the Tamil kings were as follows: *Thirayan* was the first among the feudatory princes and had his capital at Kanchipuram. The rulers of Venkadam, Maladu and Milalai Kurram were the feudal chiefs of the Cholas. The Chera king had as his vassals the chiefs of Alumbil, Kuthiraimalai and Thakadur. Ay, Porunan and Palayan Maran were the principal chiefs of the Pandyas.

### Social Life.

The dress worn by the Tamils differed according to their status in society and the race to which they belonged. The middle classes wore ordinarily two pieces of cloth, one loosely tied round the head and the other round the waist. The soldiers put on uniform. The nobles wore such dresses as were suitable to the climate of the country. Boys were married at sixteen and girls at twelve and this was considered as the proper period for marriage. One of the most important customs of South India was the building of temples and shrines over the tombs of the dead. To perpetuate the memory of soldiers who sacrificed their lives in battle, hero-stones (Virak-kal or Masthik-kal) were erected with inscriptions on them.

### Government.

The Government under the Tamil kings in ancient India has both historical and practical interest. The governmental machinery was organized in the following way: A hereditary monarch who was the head of the Government was assisted by five councils which were known as "The Five Great Assemblies" and which often included some representatives of the people. The administration consisted of ministers who attended to revenue and judicial affairs, priests who directed all religious ceremonies, commander-in-chief who organized and regulated military and naval functions, ambassadors and spies to guide and advise on matters relating to foreign policy and the like. There were other principal officers of the State, such as chief astrologer, judges, magistrates, engineers, meteorologists and chancellors of exchequer appointed for purposes of administration. It is very interesting to note that this system of government prevailed independently in the three kingdoms of the Chera, Chola and Pandya. The unit of administration of the Tamil kings was the village community composed of a single village or a group of villages. There were the Village Assemblies or Mahasabhas which



looked after the administration of the village. Even-handed justice was meted out to the suitors free of cost unlike in the present day. As the punishments were severe, crimes were rare. The Village Assembly also exercised equal powers in matters concerning the administration of justice. Many of the South Indian inscriptions testify to this fact. The administration of Tamil kings was highly systematised. The principal source for the revenue of the kingdom was taxation which was in cash and in kind.

#### Public Works and Town-Planning.

The irrigation works were a branch of the Public Works. These were divided into major and minor works. Compulsory labour was employed for carrying out these works. The system of irrigation was indigenous in origin and consisted mostly of tanks and channels. The village public works also included the public roads, the maintenance of which was one of the duties of the Assembly. The capital towns of the Three Kingdoms, *viz.*, Vanchi, Pukar and Madura stand as excellent examples to illustrate the art of town-planning pursued by our ancients. The city was generally divided into three parts, the outer, intermediate and the central. Each portion had its own public places, streets, parks and tanks. Particular attention was bestowed on questions relating to public health and sanitary conditions. The system of drainage was well maintained and people regulated properly the disposal of waste water and sewage. Towns and houses were planned according to the rules laid down by the ancients. The houses of the Brahmins, farmers, shepherds and fishermen were some of the typical examples.

#### Literature and Religion.

The Tamil literature is the source of information for a study of the ancient history of the Deccan. We have certain works—*Pattuppattu*, *Ettuthokai* and *Pathinenkalkanakku*—which, as a body, are known among scholars by the collective designation of Sangam works. This designation assumes the existence of an academy of scholars and critics of recognized worth and standing in the world of letters. Tradition knows of three Sangams. The Sangam was a permanently existing body. Historically the Sangam works are of great value. The Tamil kings patronized the work of the Sangam among whom *Pandiyan Urga Peru Valudi* deserves special mention. It is impossible to fix with any degree of accuracy the age of Sangam activity. But we can confidently say that it attained its zenith of perfection in the first or second centuries of the Christian era which is considered as the Augustan Age of Tamil Literature. The works of no less than fifty authors have come down to us and the works of so many authors of one age throw a flood of welcome delight. An examination of these works will reveal to us the cultural activity of the Tamils.

Four great works of this period, viz., *Kural* by Tiruvalluvar, *Kalithogai* by Nallan Thuvanar, *Chilappathikaram* by Ilanko-Adigal and *Manimekalai* by Chathanar, are of outstanding importance. These furnish ample materials for studying the histories and civilization of the ancient Tamils. In this literature we find a true and faithful picture of the social and political condition, the habits and manners of the Tamils, preserved in an enduring form. The monarchs of South India, besides patronizing education, took keen interest in developing the science and practice of fine arts, such as music, dancing, painting, sculpture and architecture.

There were several religions in South India in olden days. Among them Shaivism and Vaishnavism deserve special mention. Religious toleration was one of the most striking features of Tamil society.

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## THE IRIKKAL KOVILAGAM, TRICHUR.

BY A. GOVINDA WARIAR, ESQ., B.A., B.L.

ABOUT two miles west, or rather south-west, of Trichūr, on the road to Perumpuḷa, Antikkād and other places, there is a *dēsam* called Oḷarikkara in which place is situated a popular Bhagavati temple of some antiquity. It is held in much veneration by the inhabitants of the neighbouring *dēsams* who celebrate with *éclat* its annual festival or *vēla*, turn by turn.

A furlong to the south of this shrine, there is a very extensive garden which originally belonged to the Kiḷakkiniyēdatt Nambūtiripād, but is now in the hands of Mr. A. Śankara Puduvāl, B.A., B.L., Member, Legislative Council, Chief Court Vakil, Trichūr. It contains three tanks and more than half a dozen wells, all of considerable size, and built with a superior kind of laterite. To the north-western side of the biggest of these ponds, we find the remains of the original residence of the Nambūtiripād, on a raised block of land, with two wells and a pond or rather *Kokkarṇi* attached to it. The huge pieces of masonry scattered about the place give us an idea of the massive structure that must have been reared on such a foundation.

Local tradition has it that one of the ancestors of the Kiḷakkiniyēdatt Nambūtiripād, a partisan of the Zamorin, gave him a royal reception, and helped him in his wars with the Cochin Royal Family, with the result that, when the Zamorin was expelled, the major portion of the estate of the Nambūtiripād was confiscated by the State (or *Pandāram kēri*, as the common people say). A pension of sixty-eight and odd Cochin fanams\* was given him and he was allowed to reside in a small part of the estate in Ayyantōle, a *dēsam* to the north of Oḷarikkara. He lost also his *Uraimaship* of the Vadakkunnāthan temple, Trichūr, to which he is said to have paid visits in a palanquin borne on a cloth spread out on clean white sand strewn all the way from his *illam* to the temple—a distance of about two miles.

The tradition is also referred to in a little known Malayāḷam work called *The History of Kerala* by Mr. Kaṇṇampara Rāmanuṇṇi Nāyar.† He makes a reference to the Irikkal Kōvilagam. The passage may be freely translated thus ‡:—

\* This gives Rs. 19-7-8. See *Cochin Legislative Council Proceedings*, Vol. II, page 1134. The pension is now being shared after partition by the three families in Ayyantōle, Maṇattiṭṭu and Chembukkāvu *dēsams* in the outskirts of Trichūr.

† Pp. 128-29. The book was published in 1084 M.E. by Mr. P. Kunjukṛshna Mēnōn, Kōttakkal, North Malabūr. The author treats it as genuine history.

‡ A short notice of the same tradition will be found in Mr. K. P. Padmanābha Mēnōn's *History of Cochin* (Malayāḷam), Vol. I, p. 333.

"Almeyda, subsequently, came to Cochin, and began the construction of the Fort. At this time there was some dissension in the *tāvaḷies* of the Cochin Royal Family. He interfered in these, and superseding the first two princes, enthroned a Vīra Kēraḷa Tampurān (*viz.*, the third prince). The rest of the princes, not being agreeable to this, rebelled. The Zamorin with 500 Nāyars went and lived in the Nambūtiripād's *illam*, known as the famous Irikkal Palace. There he gave the Zamorin a grand entertainment. It is enough to mention that the Nambūtiripād received him in a manner befitting his own wealth and the dignity of his guest. The Tampurān got down from his palanquin when he reached the Gate. The pathway from it leading to the portico was well decorated with sand and carpetted (*veḷḷayum karimpadavum virichehu*). This shed (*natappura*) was as long as the distance of pollution to be observed by a Cheruman (seventy-two feet). On both sides of it, without any break, were hung golden chains (*Ponnaranjāṇ*). Seeing this the Zamorin glanced respectfully at the Nambūtiripād, as he was reminded of his wealth and pride. It was after this that he sat down in the portico. The rest of the reception was on a similar scale.\* They resided there that day, and after the morning bath, proceeded together to the Trichūr Temple. They prayed in the temple, left it by the northern gate (*gōpuram*) and went to the Trichūr Palace. When they approached the portico, they got down from their palanquins. The 500 Nāyars of the Zamorin and the 1,000 Nāyars of the Nambūtiripād surrounded the palace. Even now there is a *dēśam* called Irikkal west of the Trichur Fort. There can still be seen three big tanks finely built and some smaller ponds and the Irikkal Bhagavati Temple. This Bhagavati was the *paradevada* (tutelary deity) set up in the yard of the palace of the Nambūtiripād."

It is noteworthy, in this connection, that, though Mr. Rāmanuṇṇi Nāyar and Mr. K. P. Padmanābha Mēnōn have referred to the story, they have not identified the Irikkal Palace of this unnamed Nambūtiripād with the Kīḷakkiniyēdatt Nambūtiripād's residence.

That the tradition may contain an element of truth will be seen from a study of the political events of the period (1505-06 A.D.). It is well known that, when Dom Francisco de Almeyda, the Portuguese Viceroy, arrived in Cochin in 1505, there was some dispute regarding succession to the Cochin throne. Uṇṇi Rāma Varma Kōil, the retiring Raja, had three *anantiravans*, of whom the two senior princes were openly hostile to the State, having sided with the Zamorin two years previously. Hence the Raja with Portuguese help had set up on the *gadi* the third prince, Vīra Kēraḷa Varma. The other

\* Local tradition supplements this by saying that the Zamorin was welcomed by a golden *para* filled with fanams, another *para* with a golden bunch of cocoanuts, with a golden lamp (*nilaviḷakku*), etc.

princes, expelled from the country, had their own supporters among the nobles, including prominent Nambūtīries. These partisans protested against their exclusion from succession, so that even the late Raja, who had assumed the titles and dignities attached to the Perumpadappu Muppu Stānom, began to doubt the validity and justice of his action. Soon after the coronation of Vira Kēraḷa Varma by Almeyda, the two princes along with the Zamorīn invaded the country. The Irikkal chief may have been one of those local potentates who espoused their cause, and who had, hence, to pay the penalty for the same.\*

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\* *Vide* also pp. 330-32, *History of Cochin*, Vol. I, by Mr. K. P. Padmanābha Mēnōn, B.A., B.L., M.R.A.S.

# STUDIES IN BIRD-MYTHS No. XX.—ON AN ÆTIOLOGICAL MYTH ABOUT THE BARN-OWL OR THE SCREECH-OWL.

BY SARAT CHANDRA MITRA, ESQ., M.A., B.L.

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READERS of Gray's *Elegy written in a Country Churchyard* will easily recall to their minds the lines :—

“ Save that from yonder ivy-mantled tower,  
The *moping owl* does to the moon complain  
Of such as, wandering near her secret bower,  
Molest her ancient solitary reign.”

The owl referred to in the foregoing lines is undoubtedly the Barn-Owl or the Screech-Owl which is found both in Europe and Asia (including India, Burma and Ceylon).

The Barn-Owl or the Screech-Owl (*Strix flammea*) is a familiar bird of the country-side both in Great Britain and in India. Its facial disk is complete. There are no plumicorns. Its operculum is large. Its plumage is tawny buff above ; its face and underparts are whitish ; its bill is yellow. There are bristles generally on its feet. Its claws are black. Its middle claw is serrate. Its flight is leisurely and noiseless. *Its cry is a screech* ; and it snores. The females of this species are large in size. It builds no nest. It lays its eggs in some hole in the tower of a church or of some other building. The usual number of the eggs laid by this species is from two to seven. But it is popularly believed in England that this owl lays its eggs in pairs.

As already stated above, the *Strix flammea* is one of the commonest birds of India, Burma and Ceylon. Dr. W. T. Blanford, F.R.S., at pages 264—266 of the third volume of *The Fauna of India—Birds*, mentions that this owl is called *Bhutum Bricha* in Bengali.

There is current in some parts of Eastern Bengal the under-described ætiological myth about the evolution of what appears to be the Barn-Owl or Screech-Owl (*Strix flammea*) :—

There lived in a village, named Mahmudpur, an old man and his aged wife. They were possessed of great wealth in the shape of cattle and corn. But they had no children. Consequently they became disgusted with the world and their worldly belongings. In this frame of mind, they decided to go on pilgrimage to the sacred shrines of Hindudom.

Before starting on their tour of pilgrimage, they sold all their corn, cattle and other belongings and stored, in six earthen vessels, all the money fetched

by the sale thereof. Then they excavated a hole in the ground in a deserted cow-house, and hid therein the aforementioned six earthen vessels full of rupees.

Having done so, they set out on their tour of pilgrimage to the sacred shrines. Having finished their pilgrimage in the course of several years, they returned home to their native village. But they were unable to trace out their own homestead in the village, and searched in vain for the six earthen vessels full of rupees, which they had hidden in a hole in the ground within a deserted cow-house. They searched high and low—they sought for the vesselfuls of money up hill and down dale. But nothing came of their search. The result was that they were unable to find out their money—their hope and the stand-by of their old age in this world. Thereupon they became sorely stricken with sorrow at the loss of their money. The benign gods took pity on their distressed condition and metamorphosed them into two Barn-Owls or Screech-Owls (*Strix flammea*) which thereafter flew into a neighbouring large banyan-tree (*Ficus indica*). Here the two birds sat and recriminated each other in the following way. The old man, who has been transformed into the male owl, says to his old wife who has been changed into the female owl: “Did you hide the money or did I hide it?—You hid the money.” (তুই থুলি না মুই থুলি?—তুই থুলি ।)

The old woman, in her owl-shape, replies to her mate's accusation by saying: “Did you hide the money or did I hide it?—You hid the money.” (তুই থুলি না মুই থুলি?—তুই থুলি ।)

Up to the present day, these two old people (in their owl-shapes) have not been able to find out their hidden money, and so accuse each other by screeching: তুই থুলি না মুই থুলি?—তুই থুলি । (“Did you hide the money or did I hide it?—You hid the money”).

It is for this reason that, even up to the present time, we hear the Barn-Owls or Screech-Owls screeching at each other after nightfall and all through the dark hours of the night.\*

On analysing the foregoing ætiological myth, we find that its essential components may be described as follows:—

- (1) The hero and heroine are possessed of some wealth.
- (2) Being apprehensive of losing the same, they hide the same in a hole in the ground.
- (3) After some temporary absence from their place of abode, they return home and search for their hidden wealth, but are unable to find the same.

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\* Vide the article entitled: “*Tui thuli nā mui thuli*”, published at pages 306—311 of the Bengali Monthly Magazine, *Mukul* (published from No. 22, Sukea Street, Calcutta), for Chaitra 1332 B.S. (March—April 1926).

(4) They are sorely stricken with sorrow at the loss of their wealth.

(5) The benign deities take pity on their distressful condition and metamorphose them into two Barn-Owls or Screech-Owls, which screech at each other during the dark hours of the night even up to the present day.

In my paper "*On an Ætiological Myth about the Common Hawk-Cuckoo*" which was published in this Journal for April 1926, I have already shown that the primitive myth-makers of Bengal have done justice to the poor old woman, who was deeply distressed at the loss of her money, by causing the beneficent gods to metamorphose her into the Common Hawk-Cuckoo. In the case of the old man and woman, whose loss of wealth and consequent deep grief form the subject-matter of this study, the primitive myth-makers of Bengal have also adopted the same device for the purpose of alleviating their distress. That is to say, they have caused those beneficent gods, whose natures are full of the milk of divine kindness, to feel compassion for them in their sorrow-stricken condition, and to relieve their distress by transforming them into a male and a female Barn-Owl or Screech-Owl.

As I have already shown in my previous studies of the first ætiological myth (from Sylhet) about the Indian Cuckoo and of that about the Spotted Dove, men's sorrow at the death of some relative or kinsman by an unexpected accident, seems to have moved the compassion of the primitive myth-makers of Bengal, for, in these cases also, the latter have caused the benign gods to alleviate the grief of the sorrow-stricken persons by metamorphosing them into an Indian Cuckoo or a Spotted Dove.

In my Bird-Myths, No. XIX, "*On an Ætiological Myth about the Brown Fish-Owl*", I have already stated that owls in general are regarded by the Bengali womenfolk and the Bedouins of Tunisia in North Africa as some sort of supernatural beings, such as messengers of death or ghosts. This folk-belief has its analogue in England, where insects and mammals of nocturnal habits are also regarded by the country-folk in the light of supernatural beings. For instance, the large night-flying moths are regarded by the Welsh peasantry as *Fairies* or the *little folks*, and packs of weasels which hunt by night have been looked upon by the illiterate folks of the English countryside as "*fairy-dogs*", as will appear from the following interesting account which has been published in the English '*Daily Mail*' and reproduced in the Calcutta daily, *Statesman*, of the 11th July 1926, under the title of "*Quaint Superstitions, Fairy Dogs of the Fields*" :—

"Most of the ancient superstitions connected with Nature are founded upon fact. The fairies, for instance, must have originated with the large moths which frequented the woodland glades in that uncertain light when



twilight gives place to night. In Wales farmers and shepherds I have spoken to, still firmly believe in the "*little people*" of the hills—a diminutive race of men and women about two inches in stature, writes Oliver G. Pike in the *Daily Mail*.

In my own district, not far from the picturesque Chiltern hills, you may find farm labourers who will tell you of the packs of 'fairy dogs' which still haunt the meadows at night.

And, remarkable as it may seem, our meadows are hunted by night by packs of small but desperate robbers. But if those who believe that they are fairies had investigated instead of standing in awe as the pack passed by, they would have found that these miniature hounds were weasels.

At certain times of the year large parties of these determined raiders, consisting of anything up to forty members, will hunt in packs. In the late summer they may consist of the parents and eight or ten youngsters, but these are seldom seen, for on the approach of a human being they slink into cover.

But the hunger pack of these miniature wolves is a different problem. It is far better to stand still and allow them to pass on their way unmolested, for they will not fail to attack any creature which stands in their path. They may be trailing a rabbit or a hare, and so keen are they in following the scent that they will travel for miles. Although the hunted creature may hide in hedges or clumps, the relentless pack will, time after time, creep up, until their prey is so scared that it will go to ground, or thrust its head into a thick mass of grass. Then the pack closes in and one more creature of the wild is doomed."

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## NOTES.

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### Date of the Commentary on Naisadhakavya by Candupandita.

BY P. K. GODE, ESQ., M.A.

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AUFRECHT in his "Catalogue of MSS.," Vol. I, p. 177, states that Candupandita wrote his commentary on the Naiṣadhakāvya of Śrīharṣa in 1456 under Sanga, Chief of Dholka. Further he reports the same date for this commentary on page 306.

The Government MSS. Library at the Bhandarkar Oriental Research Institute contains two Manuscripts of the Naiṣadhīyadīpikā by Candupandita :—(No. 16 of 1874-75) which is dated Saṃvat 1473, *i.e.*, A.D. 1417, and (No. 415 of 1887-91) which is dated 1442, *i.e.*, A.D. 1386.

If these dates of the MSS. are regarded as genuine, they conflict with Aufrecht's date, A.D. 1456.

Now if we have a copy of the Naiṣadhīyadīpikā in A.D. 1386, presumably the *terminus ad quem* for the date should be 1386 and not 1456 as stated by Aufrecht.

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## REVIEWS.

### Report of the Mysore Archæological Department for 1926.

THE report for 1926 published under the University of Mysore by Dr. R. Shama Sastry is one of the most important and interesting documents we have perused during the past many years. It is gratifying to observe that at long last, the Ancient Monuments Preservation Regulation became law in the State, twenty-two years after its enactment in British India ; we must note, however, that action in the spirit of that enactment has always been taken by the Mysore Durbar whose interest in the conservation of our ancient monuments is so well-known. We trust proposals, as contemplated, under the Regulation will soon be made and the numerous interesting and valuable monuments for which Mysore is justly so famous will be preserved even better in the future than in the past.

Departmental tours were undertaken during the year, though one would wish, they were a little more extensive. Exploration work of any importance does not appear to have been done, though plenty of such work is near at hand. No attention seems to have been given for excavation work, which is a crying need, if we are to appraise properly the value of our ancient treasures. We are glad, nevertheless, some interest is evinced by the revenue officers ; we hope with the government that there will be a visible improvement in their inspection work. We hope, too, that like their compeers in British India, some of them at least will earn imperishable renown by their researches into our antiquities.

One hundred and twenty-five new Epigraphical records from 9th to 19th centuries A.D. were collected during the year. Of these 116 are in stone, eight are copper plate grants and one is a *nirupa* on paper. The oldest is a stone inscription of Ranavaloka Kambayya at Melagani in the Avani Hobli of the Mulbagal Taluk in the Kolar District, a *facsimile* of which is given in plate XI opposite page 88 of the Report. Dr. Shama Sastri suggests, from a comparison with other records and from paleographic evidence that Kambayya referred to must be the son of Dharavarsha, the Rashtrakuta king and that he was ruling over the Gangavadi 96,000 in A.D. 802-807.

The image of Keshava in the temple of Kausika, six miles south of Hassan, is about six feet high and is one of the finest figures yet witnessed. The Channakeshava temple at Hirekadalur was mentioned in the Report for 1909 but it was during the past year that it was inspected in detail. Thanks to the intervening sixteen years, the temple is now all in ruins. A beautiful image of Ranganatha had been carried away by a vandalistic revenue officer about 1899. The ceilings in the temple are very beautifully carved, being different in design and workmanship from each other.

Dr. Shama Sastry says he has secured a metallic image of the celebrated Vishnuvardhana from the Archaks of Belur who were so far unwilling to bring it

before the public. The image, he says, is a foot and a half in height, standing on a pedestal. The hair is wound into a knot behind the head, according to the 'Vaishnavite' custom. The figure is highly adorned with ear-rings, necklaces and ornaments. A sheathed sword is suspended from the girdle on the left side and a dagger on the right side. On the image, discus, conch and certain lines and circles are drawn on the palm of the hand, fingers and legs indicating great fortune. The figure is photographed [see Plate IX].

From what materials exactly is the figure identified with the great Bittideva? Is Dr. Shama Sastry certain the image is not one of the *Utsavamurthis* of the temple? Further, is it not likely to be the representation of some Vaishnava saint? Previous references to any image of Vishnuvardhana are not given. We find in Vol. VIII, p. 111 of the *Quarterly Journal of the Mythic Society* the following: "Regal dress at the time can be gleaned from a stone slab in the Kappechannigayaraswami temple at Belur, where the figures are supposed to represent Vishnuvardhana and his favourite consort. A cone-shaped cap covered the head of Vishnu up to the ear and a robe flows down to the feet with another cloth thrown over it. Santaladevi is very richly decorated and has large ear-rings with four diamonds in each." It is to be hoped other references will be available, if any, to identify the copper image.

The most important subject dealt with in the report, *viz.*, the identification of the 'barbarian language' in the Greek farce of the 2nd century discovered at Oxyrhynchus in Egypt will be discussed in detail separately. It only remains to refer to the Svayambhupurana, a Sanskrit work of A.D. 1798 which refers to the spread of Buddhism mixed with Saivism in Nepal. It is said to refer to the Chinese traveller Prahūpaka, who visited Nepal and who was no other than Fa Hien. The Nepalese chronicle also seems to refer to a Karnata dynasty in Nepal. "A Karnata king called Nanyadeva conquered the whole country in Sravan Sudi 7 of Nepal Samvat 9 or Saka Samvat 811, *i.e.*, 889 A.D. He is said to have ruled at Bhatgam and succeeded by his son Gangadeva who was followed by Narasimhadeva, his son." Dr. Shama Sastry naturally seems inclined to suggest that Nanyadeva may be Nanniyadeva, Bhatgama being Bhutuga grama. That would give A.D. 938-953, with reference to Ganga History. Dr. Shama Sastry discusses the date of the Katantra grammar and considers it must have been written during the close of the Andhras in the 3rd century A.D. The interesting report finally considers in detail a Sanskrit manuscript (No. 2380) of 57 palm leaves, addressed to an anonymous pandit whose views on certain Vaishnavite customs and especially on caste were therein controverted. In concluding with this rather long review, we regret to have to observe, with the reviewers in the *Asiatic Quarterly* that Dr. Shama Sastry's splendid work deserves to be printed better and on thicker paper.

S. S.

## Sri Krishnaraja Silver Jubilee Souvenir.

(*The Trades Publicity Corporation, Ltd., Bangalore : Rs. 5.*)

THE twenty-five years of beneficent administration of Krishnabhupala was fitly celebrated last August in Mysore and throughout the State. A number of works were published on the occasion by a grateful public. Of these, one has a more than ordinary interest for members of the Mythic Society. Apart from its being edited by our Secretary, when the book was sent to me for review, it struck me that it required a somewhat detailed treatment. The volume under review is rich in matter and very suggestive in its contents. The get-up is excellent and execution very good. My object here is however to deal with it so as to excite the curiosity of patriotic Mysoreans to what there is in Mysore and to influence, if I may, a few of the highly talented of its people to write an authentic and up-to-date history of Mysore.

The work is dedicated, quite appropriately, to the great and saintly ruler of the State, on the auspicious and memorable occasion of the Silver Jubilee of his historic reign. The publishers, The Trades Publicity Corporation, Ltd., have referred in high terms of praise to Mr. S. Srikantaiya's qualifications for undertaking a work of this kind and what I know of him for over two decades impels me to admit that he more than deserves them.

I may be pardoned, if I should take pride in the fact, that I was the first to discover Mr. Srikantaiya. About twelve years ago, I have had the pleasure of reading, in manuscript, the result of his researches into the tangled web of Hoysala history and then I thought that Rev. Father Tabard was unerring, as usual, in his judgment of men and in his selection of young men for the country's cause. His papers on "Hoysala history" were warmly appreciated and are to-day reckoned amongst the finest contributions to the subject. Readers of the Mythic Journal are not unaware of the patient work he has been doing ever since.

I am referring to these details, not that it is necessary for the purpose of canvassing appreciation for the Souvenir—that can stand on its own merits—but for a quite different one. Several years ago, Father Tabard, Mr. Srikantaiya and myself happened to be talking, one evening, under a shady tree of the well-kept garden of the Mythic Society. The Father keenly deplored the absence of a reliable history of Mysore, though, as he passionately averred, materials were not wanting to write such a history. If scholars like Rao Bahadur R. Narasimha-char, Dr. R. Shama Sastry and Dr. S. Krishnaswamy Iyengar were afforded the facilities, which were necessary, a monumental history of Mysore could be produced. Oh, the selfless clergyman proceeded, if there could be established a University in Mysore, the first thing to do would be to endow of a chair for Mysore history in the University, the subject to be treated on a scientific and cultural basis. The outside world would then know the part Mysore has played in ages gone by. One portion of this dream was realized and Father Tabard was a Fellow of the University of Mysore ever since its inception. No chair for Mysore

history was, however, created. Nevertheless, the friends and admirers of Father Tabard endowed a medal in the University for a successful essay on any of the subjects with which the Mythic Society was interested. It has, however, to be regretted that Mysore history as such has not yet come to command the affection of Mysoreans in their own University. As Father Tabard used constantly to assert, there is not another kingdom than Mysore which has such an unbroken chain of continuous history behind it in India and the history of Mysore as a time reflex, of its present eminence, in days of yore, was no less great in every field of human activity—political, religious or social. In the first six pages of the *Souvenir*, Mr. Srikantaiya has just sketched an outline of its political history, as introduction to the present theme. A similar account relating to the religious as well as social history of Mysore is a very great desideratum.

When the Mythic Society induced that prince of patriots, Sir M. Visvesvaraya, to preside over one of its annual meetings, the latter made a few most stimulating observations which overjoyed Father Tabard. That statesman's clarion call to the scholars of Mysore to write its history in Kannada was universally appreciated, though even to-day the response is unfortunately lacking. Except the hobby-hunter, the professional scholar is poor; the encouragement he gets for a work of this kind is comparatively insignificant; the facilities he gets are infinitesimal. If in the end he gets through the work, he must face the printer and publisher his bills from the start. Besides, there is little chance of a generous public recognizing any merit in the work. He cannot influence the Text Book Committees to give him a chance by prescribing it as a text. For such work, the old State encouragement must come and in ample measure.

I well recollect another occasion when Father Tabard discerned merit in a clever young man. The Rev. Mr. Vanes read a paper on coins. The President put a few questions at the end, in his inimitable manner, to the audience. One among them answered them all. Father Tabard was very much pleased at the time. That young man was selected by our distinguished Vice-Chancellor for Oriental studies abroad and he is now the Professor of Culture History in the University of Mysore. Those of us who are acquainted with Dr. M. H. Krishna Iyengar know what a genial man and sound scholar he is. Mr. B. Puttaiya, the Superintendent of the Government Press, was another scholar who attracted the attention of our President. Mr. S. K. Narasimhaiya, an enthusiastic merchant of Bangalore wrote a life of Kempe Gowda, one of the Magadi chiefs and to it was written a foreword by Father Tabard. He was an enthusiastic lover of Mysore and took it as a compliment in which he shared as a Mysorean, when Mons. Clemenceau extolled the beauties of Mysore during his visit.

I am so largely reminiscent of Father Tabard, because it is his ideal of duty that has set one of his beloved pupils to write the history of Mysore of these twenty-five years. Further, I should never weary in repeating the words of the Founder of the Mythic Society and exhorting students of history to continue to labour, however unpromising the rewards of research may be for the time.

The members of the Wesleyan Mission in Mysore have done a great deal for Mysore History and the Rev. E. W. Thompson, author of a History of India, is one of the foremost of them. Mr. C. Hayavadana Rao has been endeavouring, at the instance of the Government of Mysore, to bring up to date the *Gazetteer of Mysore*, published by the late Mr. Rice. In the Souvenir, which by the way is the first publication of its kind in Mysore, Mr. Srikantaiya appears to have anticipated him in so far as modern Mysore is concerned. It is also natural that as a Souvenir, the book has quite a modern air. There is less of criticism and more of an effort to compile, arrange and clearly set forth the state of things. Yet, even the short and hasty sketch of Mysore's early history given in the book is sufficient to indicate the rich treasures available in our inscriptions, etc., that await the patient researcher. If Mr. Srikantaiya had given a little more attention to the earlier history of Mysore, posterity would have been grateful to him, but the bulk of the book would have more than doubled. I am further conscious of the fact that as a dedication to the Sovereign on the occasion of the Silver Jubilee of the Maharaja's reign, it was mainly concerned with what was achieved during this period and what precedes is thus only an introduction which provides the setting for a proper appreciation of the work of the Maharaja for his country. Religion also, apparently for this reason, is referred to only casually and as many interesting items as possible are included in its pages. Mr. Srikantaiya has also succeeded in culling a symposium of opinions of eminent men of the world regarding the Maharaja; it is rightly one chorus of universal and generous testimony in which he is held all over the world. I would congratulate the enterprising editor for the illustrations in the book which include many rare and old paintings. Mr. P. Raghavendra Rao has rendered invaluable help by giving an account of His Highness' early life in the pages of the Souvenir.

I close with the fervent hope that a chair for Mysore History will be founded in the University of Mysore and an accurate and authentic history of our beautiful country will be ere long published in the language of the country and its people.

K. DEVANATHACHARIAR.

## CORRESPONDENCE.

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### Salivahana Saka.

BY S. SRIKANTA SASTRI, ESQ., M.A.

APART from much that is not quite germane to the subject discussed, I gathered that Mr. Bakhle's conclusion as regards the early date of Nahapana knocks the bottom out of my theory. I submit that no such assertion is warranted. Mr. Bakhle believes that the epigraphic evidence of Nahapana's inscriptions and numismatic evidence of the Jogelthembi hoard prove an early date for Nahapana. Everybody who has had anything to do with paleographic and numismatic evidence will agree that it is dangerous to base our conclusions mainly on this. One case in point is that of Hermaios who, it had been believed for a long time, was immediately succeeded by Kadphises I. Mr. Rapson, however, now believes that at least three-quarters of a century must have elapsed between the two. It is a tacit assumption among epigraphists that no precise date can be arrived at by means of paleographic evidence alone. Mr. Bakhle merely asserts that Nahapana's inscriptions are dated in the Vikrama era.

This is impossible for two reasons. As has been pointed out, the Nasik inscriptions of Nahapana refer to the coin Kushana which could have come into existence only when the Kushana kings had acquired power about 70 A.D. Secondly, Ushavadatta, the son-in-law of Nahapana, calls himself a Saka and hence it might be reasonably conjectured that Nahapana himself was a Saka and so also his minister Ayama though the names of Ayama and Ushavadatta already show that the foreigners were being Hinduized. The Kshaharatas and Kshatrapas were of a kindred stock. Every scholar has tacitly recognized the assertion that all Kshatrapa dates are in the Saka era, though there is no absolute proof of it. In view of Dr. Shama Sastry's ante-dating of the Gupta era, the hitherto accepted chronology of the Kshatrapas becomes rickety. But the probability, not certainty, is that we can accept them as Saka dates, because their original stock was Saka as asserted by Ushavadatta. Therefore the forty-sixth year of Nahapana must be 124 A.D.

Mr. Bakhle states that Nahapana had several successors and the last of his line was defeated by Gautamiputra. We cannot believe that his successors kept the same legend on the coins through generations without introducing their own names, however insignificant and however strong their affections for the founder. That Nahapana himself was overthrown by Gautamiputra is conclusively proved, in my judgment, by the fact that out of the large number of coins of the Jogelthembi hoard, not one is that of any other prince than Nahapana. Therefore Gautamiputra cannot be placed in 78 A.D. Bala Sri, who magnified and extolled the valour of her progenitors, would certainly not have omitted to mention the important fact of Gautamiputra's authorship of the Sakari era. Nothing is



proved by the fact that the Andhan Inscription of year 52 refers to Saka era while that of the Satavahanas mention only regnal years. It was incumbent upon the subordinate Kshatrapas to use the era of their masters—the Satavahanas. It was Rudradaman that became independent about 150 A.D. by defeating their hereditary masters. That there is no explicit reference to the Salivahana era in the early inscriptions need not surprise us. The Kshatrapa dates have been understood to be in that era. It is only very late in the Gupta period that we find mention of Gupta-kala. According to our chronology Rudradaman in the year 130 A.D. could not but use the Saka era of the Andhras to placate Gautamiputra who only six years before had inflicted a heavy defeat on the Saka Kshaharatas. We cannot believe that nearly 120 years passed by (40 B.C. to 78 A.D.) between the dates of Nahapana and Gautamiputra and that the Kshaharatas left us inscriptions only down to the third generation. Therefore the attempts to ante-date Nahapana by a century and Gautamiputra by half a century seem to be futile.

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## The Fifth All-India Oriental Conference, University Hall, Lahore.

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THE Fifth All-India Oriental Conference will be held at Lahore in November, 1928. Members of the Mythic Society who are desirous of attending the Conference as delegates of the Society are requested to communicate with the undersigned as soon as possible as the names will have to be sent to the Secretary of the Conference at an early date.

The Conference will be divided into a number of sections, including sections for the vernaculars of the Punjab. There will be a concert of classical Indian Music, a Mushai'ra, and representation of a play in Sanskrit. Excursions to places of historical interest like Taxila and Harappa will also be arranged.

The undersigned also requests members to inform him if they desire to read any papers before the Conference. If so, the paper in full together with a short summary should be sent so as to reach him not later than 1st March, 1928. This is particularly requested for the University of Punjab remains closed for the Summer vacations from June till the end of September, and all arrangements for printing the volume of summaries are therefore to be made before the University is closed for the summer vacations.

S. SRIKANTAIYA,  
*General Secretary, Mythic Society,*  
*Bangalore.*

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2. Memoirs of the Archæological Survey of India, No. 30: The Beginnings of Art in Eastern India with special reference to Sculptures in the Indian Museum, Calcutta, by Ramaprasad Chandra.
3. Archæological Survey of India, New Imperial Series Vol. L.: Antiquities of Indian Tibet by A. H. Franke, Part (Vol.) II.

#### Government of Bihar & Orissa—

Journal of Francis Buchanan kept during the Survey of the District of Shahabad in 1812-1813. Edited by G. E. A. W. Oldham, C.S.I.

#### Government of Mysore—

Proceedings of the Mysore Legislative Council: Budget Session, June 1927.

#### Karnataka Sahitya Parishat, Bangalore—

1. Shabdamanidarpana by Kesiraja.
2. Someswarasataka with Commentaries and Notes.

#### The Author—

1. Hindu Mysticism by Prof. S. N. Dasgupta.
2. Sri Krishnaraja Silver Jubilee Souvenir by Mr. S. Srikantaiya.

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Bombay Sanskrit and Prakrit Series: No. XXXIV: The Gaudavaho by Vakpati.

#### Greater India Society, Calcutta—

1. Bulletin No. 1: Greater India by Dr. Kalidas Nag.
2. Do. 2: India and China by Dr. Prabodh Chandra Bagchi.
3. Do. 3: Indian Culture in Java and Sumatra by Dr. Bijanraj Chatterjee.
4. Do. 4: India and Central Asia by Dr. Niranjana Prasad Chakravarti.

#### The Shrine of Wisdom, London—

A Synthesis of the Bhagavadgita by the Editors.

#### Asia Major, Leipzig—

Verlogskatalog N. 1: Asia Major, 1920-27.

#### Mahabodhi Society, Calcutta—

Mahabodhi Pamphlet Series No. 7: The Religion of Asoka by Dr. Beni Madhab Barua.

**Prof. Frank R. Sell, M.A., Vice-President of the British and Foreign Bible Society (Bangalore Auxiliary).—**

1. The Holy Bible.
2. Bhim Singh.

**Asiatic Society of Bengal—**

Memoirs of the Asiatic Society of Bengal, Vol. X, No. 2, pp. 133-426: Studies in Santal Medicine and Connected Folklore by the Rev. P. O. Bodding.

**University of Mysore—**

1. Kannada Kaipidi, Vol. I.
2. The Calendar for the Year 1927-28.
3. Supplement to Volume I of the Calendar for 1926-27.

**By Purchase—**

1. Ancient Persia and Iranian Civilizations by Clement Huart.
  2. Mother India by Miss Katharine Mayo.
  3. The Epic of Mount Everest by Younghusband.
  4. History of Sanskrit Literature by Weber.
  5. Report of the Administration of Mysore by Major M. Wilks. Printed under order in 1804.
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## EXCHANGES.

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1. "HINDUSTAN REVIEW," *P.O. Box No. 2139, Calcutta.*
2. "INDIAN ANTIQUARY," *British India Press, Mazagaon, Bombay.*
3. "CEYLON ANTIQUARY," *The "Times of Ceylon", Colombo.*
4. "MODERN REVIEW," *91, Upper Circular Road, Calcutta.*
5. "THE HINDU MESSAGE," *Srirangam.*
6. "WEDNESDAY REVIEW," *Teppakulam, Trichinopoly.*
7. "THE SOUTH INDIAN RESEARCH," *Vepey, Madras.*
8. "THE EASTERN BUDDHIST," *39, Ono Machi, Koyama (Japan).*
9. "THE CHRISTIAN COLLEGE MAGAZINE," *Madras.*
10. "THE EDUCATIONAL REVIEW," *Mount Road, Madras.*
11. "THE VEDIC MAGAZINE," *Gurudatta Bhavan, Lahore.*
12. "ZEITSCHRIFT DER DEUTSCHEN MORGENLANDISCHEN  
GESELLSCHAFT," *Halle, Germany.*
13. "THE SANSKRIT BHARATHI," *Burdwan, Bengal.*
14. "THE JOURNAL OF THE AMERICAN ORIENTAL SOCIETY,"  
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15. "THE KALPAKA," *Tinnevely.*
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17. "MAN," *The Royal Anthropological Institute, London.*
18. "DJAWA," *Kanarillaan, 13, te Weltevreden, Java.*
19. "MAN IN INDIA," *Ranchi, B.N.Ry. (India).*
20. "THE KARNATAKA GRANTHAMALA," *Mysore.*
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22. "THE JAIN GAZETTE," *Parish Venkatachala Iyer Street,  
George Town, Madras.*
23. "THE INDIAN SOCIAL REFORMER," *Navsari Chambers,  
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24. "PRABUDDHA BHARATA," *Adwaita Asrama, Mayavati P.O.,  
Almora Dist.*
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26. "VISHVA-BHARATHI," *10, Cornwallis Street, Calcutta.*
27. "NAVASHAKTI," *Dharwar.*
28. "THE SHRINE OF WISDOM," *The Hermetic Truth Society, Lincoln  
House, Acacia Road, Acton, London (21-3).*
29. "WELFARE," *91, Upper Circular Road, Calcutta.*
30. "MYSORE BLUE BOOK AND PUBLICITY JOURNAL," *Bangalore.*
31. "BUDDHIST ANNUAL OF CEYLON," *Colombo.*
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33. "EPIGRAPHIA INDO-MOSLEMICA," *Simla.*

34. "YOGAMIMAMSA," *Kunjavana, Lonavla, Bombay.*
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67. THE LIBRARIAN, MADRAS UNIVERSITY LIBRARY,  
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# The Quarterly Journal of the Mythic Society

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Vol. XVIII]

APRIL, 1928

[No. 4

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## THE MALAYARAYANS OF TRAVANCORE.

BY L. A. KRISHNA IYER, ESQ., M.A., M.R.A.S.

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THE Malayarayangans of Travancore are found in the woodlands of Thodupuzha, Meenachil, and Changanasery Taluks of the Kottayam District. They are numerically stronger in the Poonjat Edavagai of Meenachil Taluk. They were returned at the last census as 1,486 males and 1,372 females. They are fast dying down and this is partly due to their uncongenial environment and to conversions to the Christian fold.<sup>1</sup> Consequently, the animists of the State who were returned as 28,183 in 1901 stand at 12,687 according to the census of 1921.<sup>2</sup> In the words of Dr. Haddon, "These backward jungle folk have a peculiar interest to ethnologists as they appear to retain many of the customs and beliefs which characterized mankind in very ancient times; they are ethnological survivals which bear the same relation to anthropology as that borne to zoology by those generalized or persistent types dating from geological antiquity in various groups of animals that rejoice the heart of the zoologist."

The name 'Malayarayan' means "lord of the hills", and the Malayarayangans claim superiority over all the other tribes in the Kottayam District in social status. For instance, they are called "Vazhiyanmar" by the Ulladans, who form another neighbouring hill-tribe. The term literally means "those who rule", and affords some lingering light on their former

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1. Travancore Census Report, 1921.

2. *Cochin Tribes and Castes*, Vol. II.

sovereignty over the hills. Thus, to this day, an Ulladan calls a Malayarayan male, 'Kumaran' by the name of 'Kumaran Vazhiyan', and a female, by 'Vazhthyaramma'.

*Traditional Origin.*—The history of how the Malayarayans came to occupy their present habitat lies buried in obscurity. They claim to be autochthonous, and aver that their original home was at Chingapara near Karimala in the Ráni reserve and that they migrated in all directions owing to stress of population. But all the weight of tradition points to migration from north to south. It is said that the sage Agastya repaired to Dwarka (Tamil: Tuvarapati) and taking with him eighteen kings of the line of Sri Krishna, eighteen families of Vels or Velirs and others, moved to the south with the Aruvalar tribes, who appear to have been the ancestors of the Kurumbas.<sup>3</sup> (The Kurumbas, according to Dr. A. H. Keane, appear to be the remnants of a great and widespread people, who erected dolmens, and form one of the Pre-Dravidian tribes of Southern India<sup>4</sup>). There he had all the forests cleared and built up kingdoms settling all the people he had brought with him. This migration may have been about 1075 B.C.

Agastya's conquest of the south was indeed treated and accepted by all as a very well-known fact or tradition in history and it almost passed as a proverb, for Rama, the hero of *Ramayana*, when he recovered Sita after killing Ravana, compared his own feat to that of Agastya conquering the impenetrable and inaccessible southern regions.<sup>5</sup>

We can almost trace his footprints, as he walked from place to place in his adventurous journey to the south, for the stages of his travels are marked and punctuated, as it were, by his little 'Asramas' (hermitages) which he set up in different places in South India. Travancore has not escaped his adventures, for we find that "the Travancorean worships the ghats, particularly one of the highest peaks in them, where Sage Agastya is said to dwell and has deified their maker, Parasurama, who created Malayalam from the sea the upheaved surface of which became the ghauts".<sup>6</sup> This peak is known as "Agastiar Peak or the Mount Everest of our ghauts supposed to be the abode of Rishis.....".<sup>7</sup> "It is 6,000 feet above sea-level, and was once the seat of an observatory. It is also famous as having been the abode of Sage Agastya, a savant, physician, philologist, and theologian."<sup>8</sup> He is said to remain for eternity invisible to mortal eyes in the Podhiya hill near Cape Comorin.

3. M. Srinivasa Iyengar—*Tamil Studies*, pp. 45-46.

4. A. H. Keane—*Man, Past and Present*, p. 424.

5. O. C. Gangoly—*Journal of the Mythic Society*—p. 169, 1927.

6. V. Nagamiah—*The Travancore State Manual*, 1911, Vol. I, p. 11.

7. *Report on the Census of Travancore*, 1881.

8. *The Travancore State Manual*, 1911, p. 11.

The adventures of Agastya are relevant to the extent that he is said to have played a conspicuous part in reclaiming primeval forests in South India and making them fit for human habitation. The epic and puranic legends contain traditions relating to the physical characters of the aborigines (Nisadas), and would give them greater antiquity. The *Bhagavata Purana* describes the Nisada as black like crows, very low-statured, short-armed, having high cheek bones, low-topped nose, red eyes, and copper-coloured hair. His descendants are settled in the hills and forests,<sup>9</sup> and the Anamalai hills of Southern India form the refuge of a whole series of broken tribes. They are characterized by dark hair, short stature and broad nose. Since these physical features characterized the Puranic Nisadas and indicate their affinities with the so-called Pre-Dravidian, so I would prefer to classify the dark, short-statured, and broad-nosed jungle tribes as the modern Nisadas representing the old Nisada race.<sup>10</sup>

*Racial Affinities.*—Ethnologists consider the possibility of a Pre-Dravidian race in Southern India prior to the immigration of the Dravidians. The Deccan formed part of a vast southern continent that once extended from Further India to South-Eastern Africa and probably as far as Australia. Palæontology, geography, and geology with the ascertained distribution of living animals and plants offer their concurrent testimony to the former close connection of Africa and India including the tropical islands of the Indian Ocean.<sup>11</sup>

From the geographical distribution of lemurs along with some other mammals and of plants like bamboos, some naturalists have propounded a theory of the existence of a continent, which once united Australia and which Schlater called Lemuria. During the later part of Miocene times, this land was connected with Malayana. Travancore falls within the Indo-Malay region!<sup>12</sup> Whether this hypothetical land existed or not, the present distribution of long-headedness points to a common derivation of the African, Australian, Malanesian and the aboriginal inhabitants of India. The phenomena of skin colour and hair tend to strengthen this hypothesis.

Dr. Keane points out that there is a good deal of evidence to prove that the first arrivals in India were a black people, most probably Negritos, who made their way to India from Malaysia round the Bay of Bengal to the Himalayan foot-hills and thence spread over the Peninsula, most probably in early Palæolithic times. Thrust back by immigrations of invaders, these

9. R. Chanda—*The Indo-Aryan Races*, Part 1, page 5.

10. Do. do. " " 9.

11. A. C. Das—*Rig-Vedic India*, p. 98.

12. Ernest Thackel—*History of Creation*, Vol. I. pp. 360-361 and *Travancore State Manual*, p. 118.

aborigines took refuge in the recesses of the hills and came to be known as Pre-Dravidians. At present, there are no distinctly Negrito communities in the land, but distinctly Negrito features (dark skin, short stature and flat nose) not only crop up in the uplands from the Himalayan slopes to Cape Comorin, but these uplands abound in great megalithic monuments which enable us to unravel the history of their remote past.<sup>13</sup>

It may be interesting to record that the Travancore hills abound in dolmens and other megalithic monuments. In his megalithic culture of Indonesia, Mr. Perry points out that, all the world over, the dolmens present such similarities of culture that they must have been the work of a people shewing a common culture.<sup>14</sup> Beyond Indonesia, which includes, among others, Assam and Burma, megalithic monuments are in evidence in the region of the Mundas of Chota Nagpur, the Todas of the Nilgiris, and the hill-tribes occupying the Cochin and Travancore forests.

In the tract of Malayarayans are found tumuli and vaults called Pandukuri.<sup>15</sup> These are dolmens. Judged by my inspection of two of them at Kaduthutti in the Ráni Reserve, they are evidently disturbed. The cap-stones have been removed in each case and are lying close by.

According to Morgan, a dolmen is a stone monument of varying dimensions composed of vertical slabs set on end with one or more slabs forming the roof. It is a burial chamber in which people of later Neolithic period buried their persons of importance.<sup>16</sup>

The dolmen at Kaduthutti is rectangular and is  $8' \times 2\frac{1}{2}'$  in dimensions above ground. Lengthwise, it has one single upright on one side, while, at the other, two formed the walling. Sideways, there was one on each side. The flooring was also paved with stone-slabs as in France. The cap-stone is  $7' \times 7' \times 8''$ , and is rudely triangular. Boulders are lying about. There is only one gallery. This was found on the crest of a hill.

The geographical distribution of the dolmen offers very interesting study. It is found from the south of Scandinavia to Algeria, and from Portugal to India and Japan. The earliest dolmens are built of large unhewn blocks of stone. Lewis points out that the dolmen is not confined to one race and circles to another, but that the construction betokens a phase of culture through which many races have passed and which man developed in different localities in different ways. On the other hand, Fergusson and Eric Peet point out that megalithic monuments could not have evolved independently. Lastly, Professor Elliot Smith makes the Egyptians the

13. A. H. Keane's Introduction—*Cochin Tribes and Castes*, Vol. I.

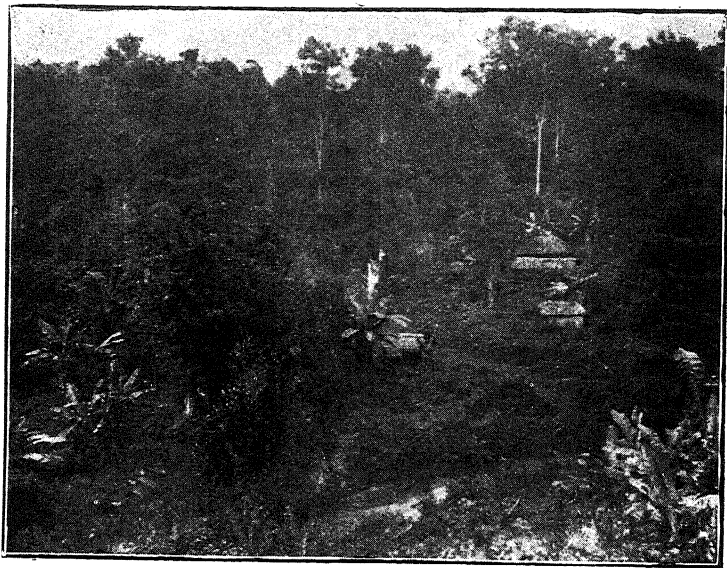
14. G. T. Perry—*Megalithic Culture of Ināonesia*.

15. V. Nagamiah—*Travancore State Manual*, Vol. I.

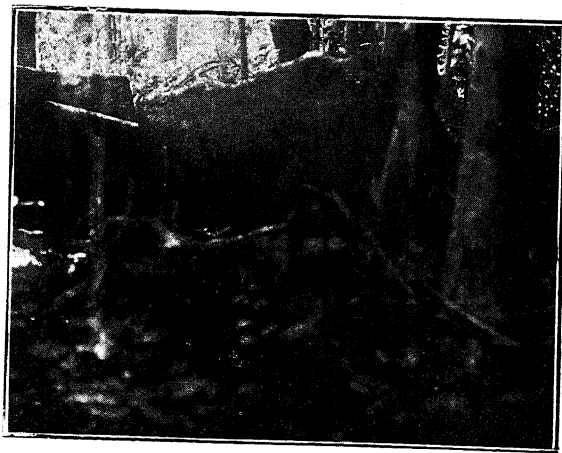
16. Jaques De Morgan—*Pre-historic Archaeology*, 235.



Malayarayan Male Group



A View of Malayan Settlement



A Dolmen with Capstone removed



transmitters of this culture all the world over at about 800 B.C., but this has been seriously questioned.<sup>17</sup>

Montelius points out the continuous influence of the East on the West since a period in the remote past of Pre-historic times. The dolmen-builders were Dravidian in origin according to Fergusson, but Ruggeri strikes a different note. He says that they were Vedici or Australoid in origin; and between the Mundas of the north and the Veddas of the south, there intervene the Kurumbars, Malayarayans who represent the ancient Pre-Dravidian formation, who once extended over the whole of India and were influenced by new-comers (the Dravidians and Aryans). According to Flinders Petrie, the date of this culture may be fixed as 2500 B.C.

The Malayarayans of the present day do not erect dolmens, though Rev. Mateer avers that they make similar little cells of pieces of stone, the whole forming a box a few inches square.<sup>18</sup> The erection of dolmens is not found to flourish as a living art among them.

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17. Panchanan Mitra—*Pre-historic Archaeology of India*.

18. Rev. Mateer—*Native Life in Travancore*.

## HAMSASANDESA—A STUDY.

BY K. KRISHNAMACHARYA, ESQ., B.A., L.T.

(Continued from Vol. XVIII, No. 3.)

As for the royal splendour, we have already seen an instance of it when the Raja-Hamsa starts on his mission, with a State umbrella held over him by his steward, the wind. Another instance is seen when the Hamsa passes Tundira Mandala and enters the Chola territory. There, along the course of the Cauvery, the forests of the tall arecanut palms are sure to feast his eyes to surfeit. The very South Wind, who is but a steward of the God of Love, is seen engaged there in arranging on a gigantic scale for a royal welcome to his master. The erection of a canopy, the swinging of the chowries, the sprinkling of fresh flowers on the road, are all minutely attended to.

कुर्वचानाकुसुमरजसा यत्र चित्रं वितानं  
पूगारण्ये मृदुविचलयन् पाळिकाचामराणि ।  
पादन्यासक्षममवकिरन् क्षमातलं पुष्पजालैः  
प्रायो वायुः परिजनविधिं पञ्चबाणस्य धत्ते ॥

As in the case of the Suvarnamukhari, there is in the description of the Cauvery another agreeable instance of the harmonious blending of the beautiful in nature with the beautiful in human experiences. The gentle flow of the river, from the foot of the Sahya Mountains into the ocean farther down, happily compares with the picture of a bride, sent from her home of birth to that of her husband, under the guidance of an aged friend, and amidst the blessings of pious Brahmins, after being duly decorated with sweet-smelling flowers by many an elderly matron interested in her.

सद्योत्सङ्गात्सपदि मरुता सागरं नीयमानां  
मद्रालापैर्विहितकुशलां तादृशानां द्विजानाम् ।  
यामस्कन्नास्सरसकुहळीपत्रपातैर्निशान्ते  
मन्दस्मेरां मधुपरिमलैर्वासयन्तीव पूगाः ॥

The Hamsa is then directed to Srirangam, and after the usual prayers offered in the temple there, he is to cross into the territory of the Pandyas. There the Tamraparni awaits him with open arms like a lovely maiden anxiously expecting the return of her lover. That he may prepare himself for a straight flight across the ocean, he is advised to recoup the vigour of his tired wings, calmly resting himself for a time on the sands of the river,

amidst cool winds that blow kissing the crest of her waves, just as a lover loses himself in the arms of his beloved.

( शीतीभूतस्तरलहरीबाहुसंश्लेषणेन । )

When the Hamsa is on the wing once again, the Lord of the Ocean, in grateful remembrance of the good done to him by the sons of the Great Sagara, a renowned ancestor of Rama, may now perhaps offer him, the messenger of Rama, some places of rest on the winged mountains under his protection. This kind hospitality must be accepted and thus the host honoured, even though the Hamsa may not feel tired. That is the way of the wise.

( अश्रान्तोऽपि प्रणयमुचितं नैव बन्धोर्विद्वन्मयाः । ) .

The Yaksha of Kalidasa has an intimate knowledge of every part of his city, and is really proud of it. Therefore it is that he grows eloquent in describing the splendour of Alaka, and all the channels of pleasure that are within the reach of even the humblest of her residents. But Rama has no direct knowledge of Lanka, and even if he have, he would not bring himself to describe the capital of his despicable foe in such glowing terms as the Yaksha does his own city. But he has heard much from Hanuman, and probably from other sources too, of Ravana's abuse of power resulting in the untold miseries of the divine damsels and the wives of the Lokapalas, imprisoned in his capital with an immoral intent. Therefore instead of picturing in his imagination the probable splendour of Lanka, Rama rightly dwells upon the unhappy state of these poor women whose only hope, consolation and courage are derived from the presence of Sita in their midst, alone with the power of her chastity. ( उत्पश्यन्तो जनकतनयातजसैव स्वरक्षाम् । ) We need not specially point out that the very first stanza here (लीलाखलं ललितगमनाः etc.) is the exact parallel of Kalidasa's (विद्युत्वत्तं ललितवनिताः etc.) both in the structure of the lines, and in that of the sense.

It is a rare privilege of the human heart, not given to many, to be able to realize the pleasure of infinite confidence in the love of one's own beloved. In the lower planes love is always attended with jealousy and suspicion. Unless there is a complete self-surrender and self-effacement on either side, the course of love does always take rugged paths. A heart capable of self-surrender does not wait for the other side to move; nor does it look back when once it surrenders. The moment it finds out its object it loses itself in it, and never gets satiated. Rama's love for Sita and her love for Rama are of that ideal type. Therefore when Rama pictures in his mind the probable state of his Sita which awaits the sight of the messenger, we do not feel that his picture is in any way overdrawn. In order that the Hamsa may rightly

recognize her at the foot of the *Simsupa* tree, as reported by Hanuman, he paints an accurate picture of her personal features,

सामेदृष्टिश्चरनयना सञ्चतभ्रूसुकेशी ।

तन्वीतुङ्गस्तनभरनता तप्तजाम्बूनदाभा ॥ etc.

These lines cannot but bring to the reader's mind the similar lines from *Meghasandesa*,

तन्वीद्यामा शिखरिदशना पक्वबिम्बाधरोष्ठी ।

मध्ये क्षामा चकित हरिणी प्रेक्षणा निम्ननाभिः ॥ etc.

The former are as good as the latter in their form; but there is a special weight attached to the original which cannot in justice be claimed by the reflection.

At the time of the messenger's approach, Sita will perhaps be engaging herself in any of those occupations which are, in the words of Kalidasa, प्रायेणैते रमणविरहेष्वङ्गनानां विनोदाः । She may perhaps be addressing birds in the belief that they may in their distant flights happen to meet her Rama; or she may be looking in the direction of the North, expecting every moment the arrival of her Lord, as assured by Hanuman; or she may be innocently asking her jewels if they remembered her lord's personal contact with them; or she may be picturing to her mind, by way of a happy memory, the secluded enjoyments of pleasure always at their service, when she and her Rama were inseparable and unseparated.

The messenger will perhaps see her in her afflicted state, like—

शुद्धामिन्दोः श्वपचभवने कौमुदीं विष्फरन्ती-

मानीतां वा विषतरुवने पारिजातस्य शाखाम् ।

or सूक्तिं रम्यां खलपरिसरे सत्कवेः कीर्त्यमानां ;

वर्षाकीर्णमिव कमलिनीं, व्याहृतार्थामिवोक्तिं,

पङ्कजश्लिष्टमिव विसलतां, पत्यपेतमिवेभीम् ।

मेघच्छन्नामिव शशिकलां, विघ्नरुद्धामिवाशां,

व्याघ्रोपेतमिव शशवधूं, भूतले ज्यामिवास्ताम् ॥

In that state of captivity, she may probably be in a reverie, shutting out all external actions of the senses and concentrating her mind upon her Rama, that she may dream of him and lightly pass her heavy moments. In the like situation Kalidasa's Yaksha requests his friend to bide for a time (याममात्रं सहस्व) lest he should disturb, by his inadvertent approach, her dream picture of a hearty embrace of her lord.

साम्भूदस्याः प्रणयिनि मयि स्वप्नलब्धे कथञ्चित् ।

सद्यः कण्ठच्युतभुजलताग्रन्धि गाढोपगूढम् ॥

After discovering Sita at the foot of the tree, the Hamsa is enjoined to await the time to disclose himself to her. For, in the words of Valmiki,

(निशाचरीणां प्रत्यक्षमनर्हं चापि भाषणम्); and in our author's (निद्रासमयमुचितं वीक्ष्य नक्तं-चरीणाम्), he has to deliver the message. The Rakshasis generally sleep in the day, and the Hamsa is therefore to spend the night in one of the neighbouring tanks. With the cool winds of the early morn, he has to make himself ready for the discharge of his sacred duty, after sufficiently refreshing himself by the energizing sleep overnight.

The message or the *Sandesa* is the crowning item in the *kavya*. And as such it must be hearty and must be couched in the language of the heart. The physical words conveying it must necessarily be श्रोत्रप्रेय as directed by the originator of this type of *kavyas*. What else can be more hearty here than an actual picture of Rama's sufferings and wailings in actually hearing of and then realizing the sudden loss of his beloved Sita? Lovers divine each other's sufferings during their periods of separation. The immortal Valmiki has, in his own inimitable style, recorded those unhappy moments and the still more unhappy and pitiable agonies of Rama in the Dandaka forest, soon after his dear Sita was mercilessly snatched away from him. Instead of drawing upon his own imagination as does Kalidasa, Venkatanatha has amply made use of the ready-made material available at hand. As we have already inferred, his very purpose is to popularize some of the best thoughts of Valmiki. A sense of appreciation of the beautiful elsewhere, coupled with a desire to share with others the discovered beauty, and a humble suppression of the self before what is honestly believed to be more sublime have perhaps made Venkatanatha adopt the course he actually did. But to proceed:

To make his presence known to Sita, the Hamsa is directed to softly sing the praises of the two families of Dasaratha and Janaka. This was exactly what the earlier messenger Hanuman did. And when her attention is drawn, he is to announce himself as the trusted envoy of her lord, and as one who generally indicates the approach of the season of *Sarat*, when alone great heroes commence their military marches into enemy territories.

शूराणां यश्शरदुपगमे वीरपत्नीवराणां ।

सन्मानार्हं समयमुचितं सूचयेत्कृजितैस्त्वैः ॥

.....Such an announcement is expected to keep up the drooping spirit of Sita, in the hopes of her lord's impending approach. A similar advice is offered to the messenger in the sister poem. There he has to announce himself to the lady as—

योबृन्दानि त्वरयति पथि श्राम्यतामध्वगानां ।

मन्द्रस्निग्धैर्ध्वनिभिरबलानी विमोक्षोत्सुकानि ॥

That heroes generally commenced their military marches after the rainy season was a fact mentioned in all works on Indian polity. Even in the *Ramayana*,

it is prominently mentioned. Apprehending that Sugriva may have slept over his promise of assistance, Rama reminds Lakshmana of the approach of their time of action, saying—

अन्योन्यवद्वैराणां जिगीषूणां नृपात्मज ।  
उत्साहसमयस्सौम्य पार्थिवानामुपास्थितः ॥

Announcing himself in the way instructed, the Hamsa is first to inform Sita of her lord's well-being, and then alone make his query after hers.

भवती भागधेयेन जीवन् ।  
कल्याणी त्वां कुशलमनघः कोसलेन्द्रोऽनुयुंक्ते ॥

For, when once she is certain of her lord's welfare, she will have the necessary courage and patience to hear the message through. There is no touch of self-importance in Rama, when he thus instructs his messenger; on the other hand, there is an amount of self-effacement here, because all this punctilious care for the very minute details of the mode of delivering the message only discloses his anxious concern for Sita. The earlier messenger did the same. Said he—

वैदेहि कुशली रामस्त्वां च कौशलमब्रवीत् ।

It was before the commencement of the Spring season (*Vasanta*) that Rama was deprived of his beloved. Now it is the Autumn (*Sarat*). All these seasons his sufferings have been acute. In the *Vasanta*, though he was himself in an abject condition, he felt more for Sita. And what he did then now forms an item of the message. To the *Vasanta* he prayed then with folded hands and bended knees, not to visit the lands where Sita was.

सीतापार्श्वे न भवतु भवानित्यवोचद्वसन्तं ।  
रामस्त्रासादनसितधनुर्मौलिना सन्नतेन ॥

In the *Ramayana*, Rama simply trusts in the good sense of *Vasanta* that he would not be where Sita is.

नूनं न तु वसन्तोऽयं देशं स्पृशति यत्र सा ।  
कथं ह्यसित पद्माक्षी वर्तयेन्मा मया विना ॥

But here he does not so trust and therefore is his abject prayer. This is indeed a finer conception.

In moments of acute agony, Rama placed himself unwittingly in the path of the cruel South Winds without realizing the dangerous effect thereof; but his dear Lakshmana stepped in and kept him from such exposures (वारितो लक्ष्मणेन). A parallel instance where Lakshmana comes to his succour is seen in the *Raghuvamsa*. When Rama, in his almost insane condition, mistakes a creeper for Sita and ventures to embrace it, Lakshmana holds him back, with tears in his eyes (सौमित्रिणा साखमहं निरुद्धः ।).

Another item of the message is Rama's perplexity as to what he should say to Janaka when questioned about his daughter, and how the aged king would feel on learning the truth. The *Asoka* with its red flowers and the *Kurunja* with its white ones had reminded him of the *Laja-homa* in his marriage offered in the sacred flames of Agni; hence the thought of Janaka had been uppermost in his mind, in those days when Sita's whereabouts could not be known.

मन्दो वक्ष्ये किमिति जनकं किन्तु योगीश्वरो माम् । etc.

This very thought haunts Rama, even in the *Ramayana*, in more than one place. And he says to Lakshmana—

निवृत्तवनवासश्च जनकं मिथिलाधिपम् ।

कुशलं परिपृच्छन्तं कथं शक्ये निरीक्षितुम् ॥

.....  
किन्तु वक्ष्यामि राजानं धर्मज्ञं सत्यवादिनम् ॥ etc.

These thoughts are quite natural and appropriate, at a time when Sita's whereabouts are not known. They naturally find a conspicuous place in the message now to be sent to Sita.

Next he tells her how, on the approach of the rainy season, he envied, in his pitiable plight, the happiness of the peacock always in the company of his hen, with no fear of a disturbance from the hands of a Rakshasa.

(रक्षः पीडारहितदयिताश्लेषधन्यो मयूरः ।)

So too in the *Ramayana*,

मयूरस्य वने नूनं रक्षसा न हृता प्रिया ।

तस्मान्नृत्यति रम्येषु वनेषु सह कान्तया ॥

In his sufferings, Rama has one consolation to keep up his heart. He can at times experience a feeling of nearness to his beloved, though far apart physically, because he realizes that he is being united to her by several common links.

देहस्पर्शं मलयपवने दृष्टि संभेदमिन्दो,

धामैकत्वं जगति, भुविचाभिन्नपर्यङ्क योगम् ।

ताराचित्रे वियति वितति श्रीवितानस्य पश्यन्

दूरीभूतां सुतनुविधिना त्वामहं निर्विशमि ॥

But Kalidasa's Yaksha is denied this pleasure-giving consolation. Though he sees the likeness of the several limbs of his love in different objects, his bitter complaint is that he cannot see them all in one place and thereby feel her presence by him.

(हन्तैकस्मिन् कचिदपि न ते शृण्विसादृश्यमस्ति ।)

Rama is more fortunate in that he can attune his mind to a sense of enjoying

the company of his beloved, whenever he sees the sameness of an object with which both of them have some kind of physical contact.

The greatest of all his anxieties is that she, who willingly followed him into the forest, is now far away, instead of securely lying in his arms.

तातादेशात्सपदि भरते न्यस्तराज्याभिषेकं  
यामामेका वनमनुगता राजधानीं विहाय ।  
तामेवत्वामुचितशयनां बाहुमध्ये मदीये  
दूरं कृत्वा गुणवति मुहुर्दूयते जीवितं मे ॥

It may be noted that in this verse Venkatanatha adopts to a certain extent the very words of Valmiki :—

यामामनुगता मन्दं पित्रा प्रव्राजितं वनं..... ।  
तया विहीनः कृपणः कथं लक्ष्मण धारये ॥

Finally Rama gives re-assuring hope to Sita that he is close on the heels of the messenger at the head of an army of monkeys, and that Lakshmana will please her ears by the twangs of his bow-string, while engaged in a fight with the Rakshasas.

अल्पीयोभिस्सुमुखि दिवसैर्योधयन्यानुधानान् ।  
कर्णे शीघ्रं तव रचयिता लक्ष्मणश्चापघोषैः ॥

Almost the same message was conveyed to her by Hanuman, where too Lakshmana had a prominent mention—

क्षिप्रं द्रक्ष्यसि राघवम् ।  
लक्ष्मणं च धनुष्पाणिं लङ्काद्वारमुपस्थितम् ॥

Lastly comes the promise of several kinds of enjoyments in store for them (enjoyments which either of them has been picturing in their dreams or hopes) when once they return home and ascend their hereditary throne—

सिद्धारम्भौ सपदि भवतामाधिराज्याभिषेकात् ।  
संप्राप्स्यावश्चिरविरहतस्सञ्चितान्देवि भोगान् ॥

And the Yaksha too extends a similar promise to his beloved in Alaka.

पश्चादावां विरहगुणितं तं तमात्माभिलाषं ।  
निर्वेक्ष्यावः परिणतशरच्चन्द्रिकासु क्षपासु ॥

That the genuineness of the message may not be doubted by her, Rama entrusts the messenger with a secret incident that took place between them, when he returned home victorious from his battle with Khara and Dushana. So does the Yaksha, by entrusting to the messenger an incident of a dream where his beloved thought she had caught him misbehaving.

Rama has no doubt that the Hamsa will discharge faithfully his mission, though he does not see anything like a visible response from the bird. For,



it is a well-known fact that one of his ancestors helped the King of Nishidas by a similar act of mercy.

प्रागप्येवं परिणतगुणां नैषधे वीक्ष्य वार्ता ।

मार्तत्राणं व्रतमिति विदुर्हन्तशुद्धात्मनां वः ॥

And the Yaksha too has a like faith in his messenger and satisfies himself that,

निशब्दोऽपि प्रदिशसि जलं याचितश्चातकेभ्यः ।

प्रत्युक्तं हि प्रणयिषु सतामीप्सितार्थक्रियैव ॥

Rama then discharges the Hamsa with a touching benediction—

स्वैरं लोकान् विचर निखिलान् सौम्यलक्ष्म्येव विष्णुः ।

सर्वाकारैस्त्वदनुगुणया सेवितो राजहंसा ॥

But the benediction of the Yaksha does not take this positive form. It is framed in the negative, and hence more forceful, we should say. Feeling keenly, as he does, the pangs of separation, the Yaksha does not wish for a similar experience in the case of his friendly messenger. And so he prays—

माभूदेवं क्षणमपि च ते विद्युता विप्रयोगः ।

Before we close we should like to touch upon what we consider to be the peculiarities of grammar, not to say irregularities, employed by Venkatanatha in about half a dozen places in the *Hamsasandesha*. Great poets have always taken such liberties with the language—liberties most of which the existing rules of grammar cannot countenance with anything like favour. And all such usages have gained, in spite of the grammarian, a force, and have become current in the language, recognized as the usages of great poets (महाकविप्रयोगाः). The great Panini himself is reported to have taken such a liberty in a few places of a *kavya* attributed to him. And Kalidasa himself has some usages to his credit. In his *Meghasandesha* he has used in one place देवपूर्वगिरिं ते (I-42) on the lines of a similar use in the *Raghuvamsa* दशपूर्वरथं यमाख्यया. In the latter the usage is justifiable, because it refers to a *name* and not an object denoted by the words. But in the *Meghasandesha* it is the *object* देवगिरिः and not the name देवगिरि that is spoken of. Even Mallinatha is obliged to admit that the usage cannot be maintained. Therefore there is nothing repugnant when we collect in one place such peculiar usages of Venkatanatha. Only they are a little more numerous than Kalidasa's. Learned commentators like the late Parakalaswami of Mysore have amply justified one and all of these usages. We shall enumerate here the few instances of the grammatical peculiarities and liberties in the *Hamsasandesha*.

(a) तीर्थे पुंसां शमितकल्लोषे (I-30).

Here पुंसां refers to कल्लोषे and not to the whole compound शमितकल्लोषे. The defect here is known as एकदेशान्वयः. Another such use is in I-39.

## (b) युग्मं नेयैर्दिवि सुमनसां सेव्यमानं विमानैः (II-6).

Here नेयैः is an adjunct of विमानैः, the *agent* of the action denoted by the root नि in नेयैः. Generally the suffixes य, अनीय and तव्य do refer to the *object* of the action denoted by the roots to which they are attached, or simply denote the *state* of action. One of the explanations offered is नेयैः—किङ्करैरिति शेषः; thus making विमानैः the secondary object of the action नि, the primary one being युग्मम्.

## (c) कमलमुकुले लीयतां षट्पदानां (II-26).

There are three roots ली (श्लेषणे), ली (द्वीकरणे) and लीङ् (श्लेषणे) which have the present participle genitive plural forms लीनतां, लयतां, and लीयमानानां only. One commentator has taken the easier course of reading in the text लीनतां; another has taken it as a verb in the imperative third person singular form, agreeing with the subject भवान्—a far-fetched construction—resulting in an unjustifiable break of the sentence.

## (d) वदनकमलं मन्दमुन्नम्य भीरुः (II-29).

This is an adaptation from Valmiki उन्नम्य वदनं भीरुः शिशुपावृक्षमैक्षत. One would expect the explicit causal form उन्नम्य. Valmiki's usage is classed under आर्षप्रयोगाः. Scholars justify this as an Implicit Causal.

## (e) कुसुमधनुषः चित्रपुंखैः (II-35).

Generally the word धनुः takes the form of धन्वन् in a बहुव्रीहि compound, according to Panini (धनुषश्च ॥ V-4-132); but he himself has provided for an exception to the rule (वा संज्ञायाम् ॥ V-4-133) which makes the अनङ्देशः optional, when the compound signifies a name.

## (f) रामस्त्रासादनमितधनुः (II-35).

One would expect अनमितधन्वा ordinarily. But here धनुः is said to be not the usual षान्त word in the neuter. It is in the masculine, and of उकारान्त—a rare instance. The oft-quoted illustration justifying the usage is धनुर्वश-विशुद्धोऽपि निर्गुणः किं करिष्यति.

We have thus studied, in sufficient detail, Venkatanatha's *Hamsa-sandesa* as compared with Kalidasa's *Meghasandesa*. And in the course of our study we have seen how far he is indebted, on the one side, to Kalidasa for the plan of his work and also for the details of ornamentation in a few instances; and on the other, to the great Valmiki for several ideas embodied in the poem. We have also seen with pleasure the play of his own imagination in not a few places. While judging of a work, the author must be kept in the background, and the merits and the demerits of the work must be impartially weighed and the final value determined. Judged only in regard

to its language and its poetic worth, the *Hamsasandesa* can easily take a rank almost equal to the *Meghasandesa*. (We have given copious extracts in this study to enable the reader to judge for himself.) But taken on the whole, it can only be ranked subordinate to Kalidasa's, for reasons already detailed in the initial pages of our study. But that is no discredit to the author. Having to his credit over a century of works, philosophical and literary, Sri Venkatanatha has his name only enhanced by his exquisite *Hamsasandesa*.

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# THE HINDU ARABIC NUMERALS.

BY A. A. KRISHNASWAMI AYYANGAR, ESQ., M.A., L.T.

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## CHAPTER I.

### The Ancient Numeral Systems of the World :

#### General Principles.

A STUDY of the early history of any branch of knowledge often throws light on many points which are apparently inexplicable and mysterious in the fully developed state of the subject presented to us in modern times. The modern decimal notation with its place-value scheme and its symbol for zero has passed through several vicissitudes at different times and in different lands before it attained its present simplicity, beauty and inevitableness, which conceal remarkably the intellectual throes endured and ineffectual circuitous paths gone through in the course of its inception.

Omitting the pictorial stage in which the picture of a thing was repeated as often as was required to represent its number, we shall take up the thread of development of the early representations of number at the symbolic stage, when strokes, vertical or horizontal, or a combination of both, began to be used. From very early times the fingers have served as a common aid to reckoning in groups of five and ten in almost all the countries of the world and have even suggested symbols for the representation of the fundamental numbers (1, 5, 10). Thus we have the stroke 1, suggested by the raised finger, used to denote unity by almost all the nations (Egyptian, Attic, Roman, Hindu and Chinese) of antiquity and the symbols V and X in the Roman notation suggested respectively by the hand with four fingers close together and thumb extended and the two hands interlinked together.

For representing intermediate numbers, *i.e.*, the numbers between unity and the group-numbers 5 and 10 two principles were devised, *viz.*, that of repetition and adjunction of symbols. But repetition soon reached its limit on account of the ocular incapacity to recognize immediately without counting the number of repetitions beyond (say) four; in some of the ancient notations such as the Babylonian where such repetitions were allowed upto nine, a suggestive form of arrangement was devised.

For example, in the Babylonian \* symbol<sup>1</sup> for 89, the symbol for ten is repeated eight times and in two columns of four symbols each and the symbol for unity nine times and represented in three columns of three symbols each; in the Attic and Roman notations, however, as well as in the Chinese and

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\* For the symbol, *vide* Appendix. For convenience of printing, all the symbols used in this paper are collected in the Appendix and numbered.

the Hindu, no symbol was repeated more than four times (occasionally five).

The practice followed in adjunction of symbols has been uniformly among all the early civilized nations of the world to write the number of higher denomination before one of lower denomination, according to the direction of the script in use.\*

In fact, in the Hebrew notation<sup>2</sup> found on coins, the symbol for any number of higher denomination is written before one of lower denomination, since naturally in a right-to-left script, the symbol on the right is written before that on the left. We are also told that the folios in 'Tabula Registri de Visitatione Maneriorum per Robertum Decanum annodomini MCCXXII, given by Hale (Domesday of St. Paul's)† are numbered with Arabic numerals written originally from right to left, the numbers being afterwards struck out and a fresh series written in nearly the same character but from left to right; again in one of the manuscripts of the thirteenth century, ‡ the first thirteen quires are numbered "I", "II" . . . "XIII" on the last page of each quire; then come 410 (=14), 510 (=15), 610 (=16) and so on.

Among nations like the Greeks and the Hindus writing the left-to-right script, the number of higher denomination is always placed to the left of that of lower denomination being written prior to it.

Examples of these are found in the Roman Notation<sup>3</sup>, in the Attic<sup>4</sup> and Tamil notations<sup>5</sup>, and in Nanaghat<sup>6</sup> inscriptions; whereas the notation in Kharoshti<sup>7</sup> numerals, (in use in N.-W. India in early times) is in keeping with the Kharoshti script which is written from right to left.

In the Egyptian notation, however, the numbers could be written either way, *i.e.*, from right to left or left to right, and in the former case the symbols were turned in the opposite way.

Whenever the above principle of adjunction is apparently violated in any numeral system, such adjunction has either a subtractive or a multiplicative significance. In Roman notation, as is well-known, a symbol preceding a higher one is to be subtracted, *e.g.*,  $CM = -100 + 1000 = 900$ . In the Hindu notation a symbol preceding a higher one multiplies it and thus has an adjectival force, as in the Tamil<sup>8</sup> notation; in the Kharoshti<sup>9</sup> system, the symbol of lower denomination coming to the right and thus preceding the other symbol in the right to left script, multiplies the symbol of higher denomination.

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\* Many critics who speculate upon the origin of the modern notation forget this important fact that the terms 'before' and 'after' are always relative to the script in use.

† Quoted by G. F. Hall, on page 16 of his *Development of Arabic Numerals in Europe*, Oxford, 1915.

‡ P. 38. *Ibid.*

In the Babylonian<sup>10</sup> system, again, we have, similarly multiplicative adjunction. Sometimes the symbol with a multiplicative significance is written under or in close conjunction with another symbol; examples can be cited in the Attic<sup>11</sup> notation and in the Nanaghat<sup>12</sup> cave-numerals.

For representing intermediate large numbers the principles of the right and the left adjunctions as well as conjunctions are combined with that of repetition; examples are to be found in the Tamil<sup>13</sup> notation and in the Chaldaean<sup>14</sup> notation.

Even such a scheme as the above in which position plays a significant role, was not capable of representing large numbers in a compact and elegant form suitable for purposes of keeping accounts, etc., and so, another system of notation began to spring up soon.

According to T. L. Heath, the Greeks had the happy inspiration to conceive the original idea of using the letters of their alphabet for denoting the numbers of units, tens and hundreds that could occur in any number from 1 to 999. But before the Greeks, the Hebrews had possessed a system of numeration (about 500 or 600 B.C.) in Asia Minor, practically identical with the Greek alphabetic numeral system, and as we shall see later on, it was in the hands of the Hindus that this kind of notation was not only utilized to its fullest extent but a literary turn also was given to it. This Greek or Hebrew notation is to some extent similar in principle to the Brahmi notation in India as may be seen from the parallel examples in the Greek<sup>15</sup> notation and in the Brahmi<sup>16</sup> notation.

For expressing higher numbers the same alphabetic symbols were used (on a principle of periodicity) with such distinguishing marks<sup>17</sup> as dots, dashes, or bars placed over them to denote the number of thousands, etc., thus anticipating to some extent the use in the modern notation of the same symbol to denote different values according to position. Though position is not essential in this notation yet it follows the principle of placing the higher number before the lower as in the earlier iterative and additive notation. The thing that spoiled it was the use of separate symbols for tens and hundreds, which increased the strain on the memory though it led to as compact a representation as in the modern system.

There is a third system of notation known as the Babylonian sexagesimal system which also came so near to the modern one in the notion of positional value but diverged from it in the adoption of such a large base as 60 for numeration and in its failure to recognize the importance of the use of a symbol for zero. In an article by Cajori in the *American Mathematical Monthly* (January 1922) there is a reference to a Cuneiform Tablet (supposed to be as old as 2000 B.C.) which reveals the Babylonian operations with

sexagesimal fractions similar to modern operations with decimal fractions. But the Babylonians had no mark to separate the fractional from the integral part, which was a serious defect. Thus the number 44 (26) (40) could be interpreted in an infinite number of ways and the correct interpretation could be judged only from the context.

It is believed that in this notation a sign was occasionally (not consistently) used to indicate a gap or the absence of any group or class; but it was not a part of the numeral system nor was it used in calculation. The Omicron '0' of Ptolemy was also not used as a regular zero but merely to represent blanks in sexagesimal fractions. It is a speculation of some historians of mathematics that probably with the introduction of the Babylonian sexagesimal fractions into India, passed also the principle of local value and the restricted use of the zero.

There was a kind of positional notation in vogue also among the Chinese<sup>18</sup> who used one set of numerals in the odd places and another set in the even places. In the Sun-Tsu Suan-Ching (of the first century A.D.) the arithmetical classic of Sun-Tsu we read, "In making calculations we must first know positions of numbers. Unity is vertical and ten horizontal; the hundred stands while the thousand lies; and the thousand and the ten look equally and so also the ten thousand and the hundred."

From the above brief survey it is evident that the different early systems of notations obtaining in different parts of the world contained the germs of the principle of the modern notation which was destined to develop in India where all these various strata in the growth of the notation are to be seen in a peculiarly indigenous form naturally leading to the place-value and the zero. What made the Greeks and the other nations who came so near the modern principle miss it is, in the present writer's opinion, their heterogeneous numeration which reckoned first in powers of ten upto one thousand and then in powers of one thousand, instead of regularly reckoning like the Hindus in successive powers of ten (एक, दश, शत, सहस्र, दशसहस्र, लक्ष, . . . .).

## CHAPTER II.

### The Development of the Numeral Systems in India : The Kharoshti and the Brahmi Numerals.

There were four different kinds of numerals in use in India from early times, *viz.*, the Kharoshti, the Brahmi, the symbolic word notation, and the alphabetic notation, before the decimal notation sprang up with the nine symbols and the zero. In this chapter, we shall describe the first two kinds which alone have some relation to the problem of the supposed Arabic origin of the modern numerals.

The Kharoshti \* script which was in use in the North-West of India, was written from right to left and the Kharoshti numerals following the direction of the script were written, according to the usual practice, with bigger elements before (*i.e.*, to the right of) the smaller ones. These numerals occur in the so-called Saka inscriptions as early as the first century B.C. The fundamental signs are—

- (i) one, two, three vertical strokes for 1, 2, 3 respectively.
- (ii) an inclined cross<sup>19</sup> for 4.
- (iii) a symbol<sup>20</sup> for 'ten'.
- (iv) a cursive combination<sup>21</sup> of two tens for twenty.
- (v) a sign resembling the Brahmi symbol with a vertical<sup>22</sup> stroke to its right for 'one-hundred'.

In this notation, unlike the Egyptian, not more than three repetitions are allowed of any symbol and a new symbol always springs up to avoid the fourth repetition. Thus '8' is represented by two four's<sup>23</sup>. A separate symbol<sup>20</sup> introduced for '10' and another<sup>21</sup> for '20' facilitate the writing of the numbers from 10 to 99, while the symbol<sup>22</sup> for '100' containing a multiplicative symbol on the right is necessary for representing numbers of three digits. The common principles underlying the structure of this notation and the Aramaic notations are so general that they could have suggested themselves to any one nation independently of another, while at crucial points, differences as well as similarities are noticed which make the theory of the ultimate Phœnician origin dubious. Julius Euting's Tables of the ancient Aramaic numerals have the Kharoshti symbols for 4 and 20 but the symbols for 10 and 100 are different. As regards the symbol for 4, even Bühler thinks it probable that both the Hindus and the Semites independently invented the cursive combination of the original four strokes.

Thus the Kharoshti numerals with their additive and iterative principles appear to be the first stage in the growth of the Hindu notation, corresponding to that of the ancient Egyptians and Babylonians. They are soon absorbed in and superseded by the more refined Brahmi notation in which one may hope to find the ancestor of the modern numerals.

The Brahmi notation is the most important of the early Hindu notations. There are several theories of its foreign origin, but none convincing enough. Some fragments of these numerals<sup>24</sup> occur in Asoka's Edicts as early as 300 B.C., and these are probably the earliest forms of our modern symbols. They reappear in the Nanaghat cave inscriptions of the second century B.C.

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\* The term 'Kharoshti' means literally 'one having the ass's lip' and therefore the notation may be either the invention of a sage with the ass's lip or the notation current among barbarians contemptuously termed by the Aryans as those having the ass's lip.



The inscriptions in the rock-cave up the Nanaghat hill contain 'a list of gifts made on the occasion of the performance of several yajnas and in naming the gifts, a kind of numerals is used differing in character from those hitherto found in West Indian Caves'.\* To the perseverance of Pandit Bhagavanlal Indrajī, whom Prof. E. J. Rapson refers to as the great Indian scholar whose memory is preserved in the British Museum by the shield which records his munificent bequest, we owe the copying and the elucidation of these cave inscriptions, which, though more or less obliterated, contain numerals in no less than thirty places. Some symbols<sup>25</sup> are the same as in the usual cave inscriptions; while others<sup>26</sup> resemble the figures found in the Nasik caves; the symbol<sup>27</sup> for '80' is the same as the one found in the coins of Virdama and Vijaya Simha Kshatrapa of Sourashtra; the symbols<sup>28</sup> for 100 and 1,000 are new; higher numbers are formed on the principle of multiplicative adjunction noticed to some extent in the Kharoshti notation; the smaller element occurring to the right of a bigger one forms a ligature<sup>29</sup> with it to denote the product of the two elements.

Regarding these Nanaghat symbols, Mr. Kaye says that they cannot be said to be well-established; for Bhagavanlal's interpretations of them are based on his *Akshara* theory which is not now generally accepted, and the abnormal symbols for 100 and 1,000 are not confirmed by any other sound examples.

The next evidence of the Brahmi numerals, we have in the Nasik cave inscriptions<sup>30</sup> in which the principle of the right adjunction of the smaller unit, as in Kharoshti numerals, with a multiplicative significance, is evident.

For further examples of the use of these numerals, the reader may consult E. J. Rapson's *Catalogue of the Coins of the Andhra Dynasty*, W. Kshatrapa, etc. (1908).

From the above description it may be evident that the Brahmi numerals belong to a non-place value system and have only a limited scope since they cannot represent large numbers. There is also some analogy with the Greek alphabetic notation in the fact that there are separate symbols for the different multiples of unity, and ten; unlike the Greek notation, the symbols for multiples of 100 and 1,000 are formed on the principle of multiplicative adjunction. The idea of representing any number less than  $10^n$  by  $9^n$  or less symbols ( $n$  being any integer) is such a fundamental one that it could have suggested itself independently to any intelligent nation and it is obvious that the Hindus who managed with 20 primary symbols the representation of all numbers less than  $10^5$ , could not have obtained any suggestion from the

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\* *Vide* Pandit Bhagavanlal Indrajī's article entitled "On Ancient Nagari Numeration from an Inscription at Nanaghat", *Journal of the Bombay Branch of Royal Asiatic Society*, 1876, Vol. XIII, p. 404.

Greeks for this kind of notation. (*Vide* G. H. Ojha's *The Palaeography of India*, pp. 103, 114.)

The first four symbols of the Brahmi notation are apparently derived from the corresponding symbols of the Kharoshti numerals by turning them through an angle, a frequent process in the transformation of numerals, easily accounted for by the psychological fact\* that the primitive or the less developed minds cannot recognize the configuration and orientation of a symbol as an essential feature of the notation. According to Kern, the device of indicating the number 4 by a cross is so natural and ingenious at the same time that any comment on it may be superfluous, and all the latter forms of '4' are off-shoots of this ancient sign. But Mr. G. R. Kaye doubts this conclusion, since all the early examples except one are markedly differentiated from it. He does not believe in the derivation of 5 from 4 and, indeed, he says that no principle of formation of the symbols from 4 to 30 can, at present, be offered; but possibly the symbol for '40' is derived from that for '30' by the addition of a stroke, while the 'sixty' and 'seventy' as also 'eighty' and 'ninety' appear to be connected similarly. He also gives us a warning that the principle of formation in this case appears more marked in the later symbols and we must be careful about forming any definite conclusion as to the origin of the system from such evidence.

There are several theories regarding the foreign origin of the Brahmi numerals. For instance, Bayley assumes that the Hindus must have borrowed from four or five different, partly very ancient and partly modern, sources; and Burnell points out the general agreement of the principles of the Indian system with those of the Demotic notation of the Egyptians and comes to the provisional conclusion that the South Indian Asoka system is derived from the Egypto-Phœnician system of numerals; Bühler and Barth concur in Burnell's view. In this connection Pandit Bhagavanlal Indraji's *Akshara* origin of the numerals deserves mention, which, if accepted, would show that the numerals were a purely indigenous development. We are told that the books of the Nepalese and the North Jains have their pages numbered by a singular series of letters.

ए 1	ख 4	ग्र 7	मृ 10	
द्वि 2	वृ 5	ह 8	थ 20	शु or शू 100
त्रि 3	फ 6	ओ 9	ल 30	

\* In teaching children of about 5 years to write the letters of the alphabet, I have often met with such inversion of the letters, for example a child may write 'B' in any one or all of the following forms:—

В, ʌ, ʘ.

The origin of this kind of notation is still obscure though there are curious survivals of its usage even in modern times (*vide J. R. A. S.*, 1896, C. Bendall's article: 'On a System of Letter-Numerals used in S. India'). The Pandit, observing some points of similarity between these *Akshara* numerals and the Brahmi symbols formulated his famous *Akshara* theory; but it has been rejected by Burnell, though partially accepted by Bühler. According to Bühler, the signs have certainly been developed by Brahmanical schoolmen, since they include two forms of उपध्मानीय which, without doubt, have been invented by the teachers of the Siksha.

Besides the above there are other conflicting theories which are as fanciful as they are absurd. While it is believed that several eastern nations have invented independent systems of numerals of their own, why should we seek, in vain, to find an extraneous origin for the Indian numerals alone and get landed in unsatisfactory hypotheses? The very fact that, of the scores of hypotheses that have been trotted out to trace them to a foreign source, none have come anywhere near the truth is sufficient proof to show that no such foreign source really exists. Whatever be the origin of these symbols, the symbols, as they were, had no special virtue in them, (that one should attempt to trace them to a foreign source and thereby to deny the credit of invention to the Hindus), except for the fact that the zero symbol came to be introduced into it later on and that the modern place-value system developed in it absorbing nine of its symbols and rejecting the rest.

The Brahmi symbols are the ancestors of the so-called Arabic numerals. It does not, indeed, require so much imagination to perceive the resemblance between them and the modern numerical symbols\* as to derive them from the Greek or Arabic forms which have sometimes to be turned round or turned over or even distorted so that they may lead to the modern symbols. In a recent article (by an F. R. S.) in the *Mathematical Gazette*, July 1925, we read such statements as the following; many of these are quite untrue being probably based on such authorities as Mr. Kaye.

"Moreover recent research has thrown some doubt on the antiquity of Indian mathematics. The evidence on which we largely depend in this connection is a Hindu treatise on Astronomy called the *Surya Siddhanta*, which was probably composed in about A.D. 500 and which seems to have derived a great deal from the Alexandrian school.

There is no necessity to suppose that the Arabic numerals were derived from the Greeks through the Hindus. They may well have arisen in the Near East itself.

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\* *Vide* the Brahmi symbols and the modern symbols given in parallel columns in the Appendix numbered (30).

After the collapse of the Roman Empire, the Arabs inherited the scientific traditions of Alexandria and there is no doubt that they must, through the writings of Ptolemy and others, have been made familiar with the Greek numeral symbols.

Now it is very remarkable that these symbols (at any rate as regards 6, 7, 8, and 9) bear a singular resemblance to the corresponding Greek letters.<sup>31</sup> Thus, the late forms of Vau (capital and cursive) are 'C, S' and the latter is almost identical with the sign for '6'.....4 is a serious difficulty. It is true that there is an old form<sup>32</sup> which leads at once almost to 4; but unfortunately, the intermediate forms do not bear this out. An early Indian symbol is one<sup>33</sup> which does look like a four stroke symbol; this becomes in later Indian script  $\text{५}$ , whose variants are the Arabic symbol<sup>34</sup> and the European twelfth century symbol.<sup>35</sup>

But the decisive argument is really supplied by the zero. This is absent from the early Indian scripts, or else zero is denoted by a dot. On the other hand, we have definite evidence that '0' is used to denote zero in Ptolemy's *Almagest* which the Arabs had thoroughly mastered.

If this argument is correct, the Arabic numerals have really been derived from the Greek alphabetic numerals \* by omitting the separate signs for tens and hundreds and by importing three new signs for 1, 2, and 3.

In attempting to trace the source of the modern numerals, it is futile to associate them, on account of some fancied resemblance, with the notations developed in countries like Greece, Asia Minor or Arabia, where there was no such indigenous systematic development of positional value nor any systematic use of the zero as we find in India. The story of the parallel development of a positional notation in India, alongside of the non-positional one, we shall consider in a separate chapter.

### CHAPTER III.

#### The Development of the Numeral Systems in India: The Symbolic Word Notation and the Alphabetic Notation.

Nowhere among the other ancient nations of the world do we find such a consistent scheme of numeration as among the Hindus, which naturally reflected itself in the later place-value system. The early Hindus counted regularly in the ten-scale as so many units, tens, hundreds, and so on in successive powers of ten, unlike the Greeks, the Arabs, the Chinese, and the Japanese who introduced the thousand in the middle of their scheme of

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\* To perceive how baseless this theory is, we have only to note, that out of ten symbols in the modern notation, only four (*i.e.*, 40%) have some fanciful resemblance to the corresponding Greek alphabetic numerals and three can, with a good deal of strain, be made to resemble the Greek numerals while the rest are admittedly importations from a non-Greek source.

numeration which was really a step away from the decimal scheme. While the English eleven and twelve are out of harmony with the later teens, the Sanskrit numeration has एकादश, द्वादश, etc. (one and ten, two and ten and so on). This early Sanskrit numeration in which large numbers had to be expressed in a periphrastic way such as अष्टोत्तरशत (eight above hundred), later took a more convenient form, whereby merely the numbers of the units, tens, hundreds, etc. occurring in a number were mentioned in regular order in the increasing scale of powers of ten, the names of the powers being omitted. Thus five, seven and two meant five units, seven tens and two hundreds. This scheme naturally necessitated the explicit mention of the absence of a particular power of ten in any number and the word शून्य came to be introduced to denote such gaps. To adapt this numeration to the verses in which, generally, the early Hindu scientific works were written, a kind of vocabulary was devised, which is well described by Brahmagupta thus :—

“If you want to write one, express it by everything which is unique as the earth, the moon; two by everything which is double as for example black and white; three by everything which is three-fold, the nought by heaven, the twelve by the names of the Sun.”\*

Mr. G. R. Kaye rejects Alberuni's statement that Brahmagupta invented this notation known as the word-numeral notation (शून्यसङ्ख्या objects denoting numbers) and assumes, without any proper authority that it was probably introduced into India from the East. In this connection, it will only be proper to inquire whether in the East there has been any such extensive use of this notation as is found abundantly in the Indian astronomical and mathematical works beginning from about the middle of the sixth century A.D.

The earliest epigraphical instance of the usage of this notation in India proper dates 867 (गिरिसंवत्) Saka samvat, but in Cambodia Sanskrit inscriptions are found belonging to about 600 A.D. The period of invention of this system is uncertain and the earliest trace, as noted by Weber, seems to be in the *Srouta Sutra* of Katyayana or Latyayana. Numerous examples occur also in Pingala's manual of metrics. Varahamihira of the sixth century A.D. uses this notation in *Brihat-Samhita* (J. R. A. S., Vol. I, N. S., p. 407). Aryabhata might have known it and probably had tried to improve on it in

\* In this statement of Brahmagupta, we find a remarkable anticipation of the line of ideas which led to the modern definition of number (serving for finite collections) given in Bertrand Russell's *Introduction to Mathematical Philosophy* (Chapter I, pp. 18, 19).

'We may now go on to define numbers in general as any one of the bundles into which similarity collects classes..... In other words, a number (in general) is any collection which is the number of one of its members; or more simply still: a number is anything which is the number of some class.'

his alphabetic notation, just as the later Aryabhata, who certainly knew this word-numeral notation, thought of substituting in its place his scheme of कटपयादि notation which is a complex of the alphabetic and the decimal notation and combines the advantages of both.

Dr. Bühler thinks that the Dwandwa compounds containing words with numeral significance presuppose the existence of the decimal notation, especially when these compounds had to be dissolved by 'and'. But I should think that the word numeration suggested the place-value scheme and the decimal notation, when the words had to be translated into symbols. Such symbols were supplied by the non-positional Brahmi notation, which was current side by side with the positional numeration. Thus it must have flashed to some genius (whose name may remain unknown for all time), that the positional numeration and the non-positional symbolic notation could be welded together into the simple and beautiful scheme of the decimal notation. I am disposed to believe that the positional numeration served in India the same purpose as the abacus in Rome, China and Japan to suggest the place-value principle and the zero. In fact, the positional numeration when translated into writing, naturally leads to a form of abacus and there are evidences of which we shall speak at some length in the next chapter, of the existence of such a form of abacus in popular use in India.

Before proceeding to discuss the decimal notation in India, we shall take up an interim short-lived development of a kind of ingenious alphabetic notation \* due to Aryabhata. Dr. Fleet seems to think that the suggestion for this notation might have come from the Greek alphabetic notation, while Mr. G. R. Kaye calls it a crude adaptation of the Greek plan. But we believe that Aryabhata must have got his inspiration from the greatest grammarian of the world, Panini, who was the first Indian, probably, to conceive of denoting numbers by the letters of the alphabet in their order (*vide* † Goldstucker's 'Panini', p. 44). Aryabhata's notation illustrates one method of adapting the decimal numeration to symbolism. The positional principle was there, but utilizing the position itself for indicating value was not yet thought of and hence a temporary arrangement was devised to indicate the positional value by vowels, the consonants denoting the numerals proper,

e.g., ङि शि बु ण्ल रवृ = 1582237500.

The object of this system was conciseness which was certainly achieved and its formulæ are far more compact than in any other system of notation.

\* For a detailed explanation of Aryabhata's scheme, *vide* J. R. A. S., 1911, pp. 109-126.

† Goldstucker's reference to Patanjali and Katyayana about Panini's using letters in his Adhikara rules for the notation of numeral values, is rather dubious and the present writer is unable to locate the actual reference in Patanjali's *Mahabhashya*. Cf. *The Palaeography of India*, by G. H. Ojha, p. 124,

According to Dr. Fleet, this system implies the use of a board ruled and lettered in some such manner as in the figure below, but otherwise left blank for resolving the details of any particular statement :—

ल		ऋ or ॠ		उ or ऊ		इ or ई		अ or आ		
							5			डि
						7				शि
				2	3					बु
1	5									पल्ल
		8	2							रवृ
1	5	8	2	2	3	7	5	0	0	डि शि बु पल्ल रवृ

The question remains open, however, whether the ancient Hindus disposed of the blank spaces either by dots or by leaving them blank or otherwise.

Since this notation was too learned and difficult for the average man, it was soon forgotten and even Lalla, Aryabhata's earliest disciple, abandoned it in favour of the more popular numerical words which could more easily be remembered and fit in with metrical euphony. But it must be remembered that Aryabhata's alphabetic notation marks an important stage in the development and is a necessary precursor of the Indian decimal notation, in that it suggested a method of using the same symbol, say, ऋ, with such variations as कि कु, etc. to denote a multiple of a power of hundred. What remained yet to be done was to drop even the vowels and make the position itself indicate what power of ten is intended. This would require setting apart a consonant for zero also. But it probably took many long centuries to recognize that the zero was also a numeral on a par with the other numerals and that a separate symbol was necessary to denote it. It was only in the eleventh century, after the decimal notation with its place-value and zero had become definitely established that the alphabetic notation was thought of once again and re-adapted to the new notation. In this connection it is worthy of remark that the alphabetic notation in India was felt more or less as a necessity owing to the exigencies of metrical composition and therefore there is a greater likelihood of its being indigenous to India than a casual loan from Greece or elsewhere.

(To be continued.)

# ECONOMIC CONDITIONS OF THE THEVARAM PERIOD.

BY K. R. SUBRAMANIAN, ESQ., M.A.

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IN this paper are given a few interesting facts concerning the rivers and towns in Tamilakam of about the seventh century A.D. They have been culled from the Saiva psalms of Sambandhar and his elder contemporary Appar. They reveal an advanced system of irrigation and exchange of commodities for the age, which must have had its beginnings far earlier.

The Kavery delta has always been the "abode of Lakshmi" in the words of Sekkilar.<sup>1</sup> Karikala who has been rightly assigned to the first century of the Christian era, is said to have been the author of the irrigation system. He is praised as having built up embankments for a hundred miles for the Kavery from its mouth upwards. Before his time, the whole of the present Tanjore District must have been annually flooded for it to get the name of Punal Nadu. Earlier kings must have also bridled the wild flow of the river the lower valley of which must have been full of swamps and wilds<sup>2</sup> in the dim past. The Chola Nadu is the creation of the Kavery and its prosperity has always depended on it. By the time of Karikala the country in and round Puhar must have become less subject to periodic floods and been reclaimed, for the growth of a big and flourishing city would have been otherwise impossible. So the Coleroon (Tamil: Kollidam = கொளர் + இடம்) must have branched off before the time of the great king and carried away much of the surplus water. In fact, the island of Srirangam (=island) is older than the epic of the anklet. Karikala did permanent work to check the caprice of the Kavery and direct it into useful channels. Due to his embankment, the Kavery must have breached again widely somewhere about the present grand anicut where the Coleroon runs on a lower level. To prevent the large wastage of water which naturally flowed down from the Kavery into the Coleroon, and serve as a safety valve in times of floods, Karikala must have raised the anicut at the eastern end of the island. Whether the present serpentine anicut is as old as Karikala may well be doubted. But the Vennar is probably more than 1800 years old. Karikala is said to have won a victory at Vennil<sup>3</sup> evidently named after the river. At any rate, it is certain that the river was older than the Thevaram

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1. *Periya*, Vol. I, page 72.

2. See the names of some of the villages near the mouth of the Kavery to-day, like Thalai-chengadu, Pallavanam, Chayavanam, Swetavanam, and Perumpallam.

3. Dr. S. K. Iyengar: *Ancient India*.



which has not a few hymns on Tiruvaiyaru (=5 rivers). The Panchanada (=Punjab) or five rivers about the place are the Kavery, the Coleroon, the Kodamurutti, the Vennar and the Vettar. There is no reason to doubt the cause for the place being so named and the legend about the five rivers that they do not refer to the ordinary rivers is no sufficient explanation.

The Coleroon, sometimes called the Kottaru (probably because it had a fort at its mouth), finds mention in the hymns of Sambandhar and Appar. Sambandhar speaks of the Kottaru near his birth-place Shiyali, and as far as my knowledge goes, there is only one river worth the description in his hymns on Sirapuram<sup>1</sup> and Kochaivayam<sup>2</sup> and that is the Coleroon. The Uppanaru<sup>3</sup> mentioned in his very first hymn ill-deserves the praise. Appar mentions the Coleroon in Vijayamangai.<sup>4</sup>

There is clear evidence about the ancientness of the branch Arisil.<sup>5</sup> If we dot the various places<sup>6</sup> mentioned on the bank of the river, namely Pamburam, Penuperundurair, Puthur, Ambarmaghalam, Thilathappathi, etc., we can get an idea of its course. The evidence about the Kodamurutti is not so clear. The river mentioned by the boy saint near Kollambuthur<sup>7</sup> must be the one under consideration. Besides, the river Kaduvai<sup>8</sup> mentioned in two hymns and running by Kodavasal is a branch of the Kodamurutti.

Sambandhar's references to the Kavery<sup>9</sup> as old Kavery<sup>10</sup> have been mistaken as references to the Palankavery which is a branch at present of the Kavery with its source a little above Mayavaram. So the references to the old Kavery in his hymns on Nagesvaram and Kumbakonam which are far above Mayavaram merely indicate the ancientness of the river. The hymn on Vilanagar<sup>11</sup> refers appropriately to the Kavery and the Palankavery, the latter disappearing into the fields somewhere about this sacred place. It is quite likely that before the age of Sambandha, the Kavery changed into its present course. At any rate, there is no confusion as to their separate existence in that age. Speculation has been made if the ancient port of Puhar stood on the southern bank of the Kavery as Ptolemy of

1. *Thevaram Tirumurai*, II, Page 129, திருசிரபுரம்—சேருஞ்சந்தனுமகிலோடு வந்திழி செழும் புனற் கோட்டாறு வாருந்தண் புனல் சூழ் சிரபுரம்.
2. *Thev.* III, 113. திருகொச்சைவயம்—நிரந்துமாவயல் புதுகு நீடு கோட்டாறு சூழ்.
3. *Thev.* I, 1. பிரமபுரம்.
4. *Thev.* V, 122.
5. One of the Sangam poets was called Arisil-Kilar.
6. *Thev.* I, 53; II, 131, 150; VI, 121.
7. *Thev.* III, 8.
8. *Thev.* II, 28; V, 111, கடுவாய்க்கரை புத்தூர். It is a branch of the Solachudamani which branches from the Kodamurutti.
9. *Thev.* I, 176. ஜியாறு, II, 112. முல்லைவாயில்.
10. *Thev.* I, 138. சிவபுரம்; II, 151. நாகேசுவரம்; III, 74. குடமுக்கு.
11. *Thev.* II, 99.

the second century A.D. makes us understand.<sup>1</sup> Tamil writers locate the city on the north bank where the present hamlet of Kaveripatnam stands. Tradition and other evidences leave us in no doubt as to the site of ancient Puhar. It extended as far as Tiruvenkadu about three miles from the present hamlet of Kaveripatnam which contains the Surya and Chandra tirthas of Silappadhikaram. Perunthottam (=big garden) near Tiruvenkadu must have been an interesting suburb of the ancient city. To the south the city extended, according to tradition, upto Tirukkadaiyur about four miles from the present village of Puhar. If the latter tradition is correct, the Kavery must have cut the city into two parts. It is also likely that at one time the Kavery flowed to the north of the present hamlet and *via* Tiruvenkadu, for there is a natural tendency for its waters to rush down towards Tiruvenkadu at Marithukkatti (=prevented and dammed). In the age of Sambandha, neither Swetavanam nor Bilvavanam (கடையூர்) is associated with Puhar. Only Pallavanam and Chayavanam are sung as parts of wealthy Pattinam.<sup>2</sup>

The Manni<sup>3</sup> is another of the Chola rivers which find mention in this literature. It is called old Manni<sup>4</sup> in a hymn of Sundara. On its south bank was Āppādi on which Appar has sung a hymn. The Bhavani,<sup>5</sup> one of the tributaries of the Kavery, finds mention in the hymn on Tirunana by Sambandha.

The other rivers and streams that are found in Thevaram are, in order, the Ponmukari,<sup>6</sup> the Palar,<sup>7</sup> the Niva,<sup>8</sup> the Kamba,<sup>9</sup> the Pennai,<sup>10</sup> the Gadilam,<sup>11</sup> the Pampa,<sup>12</sup> the Manimuthanadhi<sup>13</sup> and the Vaigai.<sup>14</sup> All these have been useful in varying degrees for irrigation, a few of them filling up tanks in flood season and the rest directly irrigating the fields through channels. Some of these rivers seem to have been used for the purpose of floating down timber and also for bringing vegetables and other things.<sup>15</sup>

1. *Indian Antiquary*, Vol. XIII.

2. *Thev.* III, 139 ; I, 82 and II, 49 சாங்காடு. Now there are two stones with Yantras on them at the present border of Kaveripatnam, *i.e.*, near Chayavanam and they are locally called boundary stones till which Sampapathi has her sway. See my article on Puhar and its worthies in the *Maharaja's College Magazine*, April 1924.

3. *Thev.* IV, 60.

4. *Thev.* VII, 28.

5. *Thev.* II, 91.

6. *Thev.* III, 46. காளத்தி.

11. *Thev.* III, 98. மாணிகுழி.

7. *Thev.* I, 71. மாற்பேறு.

12. *Thev.* II, 61. ஆமாத்நார்.

8. *Thev.* II, 114. நெல்வாயிலாத்துறை.

13. *Thev.* I, 16. முதுகுன்றம்.

9. *Thev.* II, 16. ஏகம்பம்.

14. *Thev.* I, 81. பூவணம்.

10. *Thev.* II, 61. ஆமாத்நார், 127. கோவலூர்.

15. *Thev.* III, 116. வடகுரங்காடுதுறை. I think the description to that effect is not merely formal or conventional. The rivers might have been used for conveying goods from place to place. கறியுமுமிள கொடுகதலியின் பலங்களுங்கலந்துந்தி.....

A network of roads covered the land. Trunk roads between capitals are as old as the Sangam age. There is now a trunk road along the bank of the Kavery which seems to have been very ancient. If we dot on a map the shrines on the Kavery banks visited by the two saints, we are forced to believe in the ancientness of the above trunk road. Sekkilar credits the Chola king, probably his contemporary and master, with the laying out of roads.<sup>1</sup>

Pages may be filled with quotations<sup>2</sup> from the songs picturing the green and smiling fields and the cool and dense topes of the Tamil Nadu. It has been well called the abode of Lakshmi. Similar beautiful descriptions occur in South Indian Inscriptions of the Pallava period.<sup>3</sup> This poetic image should not blind us to the fact that there were famines even in those days on account of failure of rain or due to floods. The stories of Sambandha, Pugalthunai, Kotpuli and Kalikkaman contain accounts of severe famines. The first story gives the information that the pious men dispensed and induced charity to relieve the famine-stricken. The same story contains the hint that gold coins were in use in the days of the saint.<sup>4</sup>

The difference between a village and a town (=Nagara) was generally that the latter had a temple of high reputation. Attached to it were the priests versed in the Agamas, Brahmins learned in the Vedas, musicians, and others. The aggregation of a large population due to the shrine or due to the protection afforded by the fort or temple walls gave an industrial bias to town life. If the towns were the residences of kings or chiefs, or, if they were on the coast, they had additional importance. Many of these towns seem to have been walled for safety. In some places we are left to conjecture whether the saints' reference to walls is to the town walls or the temple walls.

Long before the age of Sambandha, there were many Nesandars (=weavers) and Amarneethis (=traders). The cloths, spices and pearls of Tamilakam were famous even long before the Christian era. We know from Sanskrit literature, early Tamil literature and Pallava inscriptions as also from the plentiful archæological remains, that Kanchi on the Kamba was a big and splendid city. Sekkilar's description<sup>5</sup> of the origin, walling and the peopling of the city with Vellalas by Karikala and the existence of the King's Street and many shrines in the city<sup>6</sup> though it does not add to our information

1. *Periya*, I, 215.

2. *Thev.* I, 10, 85, 176 ; II, 74, 129, 141, etc.

3. *S. I. I.*, I, 33, 34 and the Velurpalaiyam plates.

4. *Thev.* I, 117. வீழிமிழலை.

5. *Periya*, I, 417.

6. In the Thevaram of the three, there are hymns for 5 different Saiva shrines.

at present, shows the truthfulness of his statements in general. It is interesting to read in a hymn of Sambandha<sup>1</sup> that it was walled and in another<sup>2</sup> hymn that it contained broad streets. It was the city of the Pallava according to a hymn of Sundara.<sup>3</sup>

Mahabalipur or Seven Pagodas is also well known to a student of Pallava history through various sources, not the least of which is the hymn of Tirumangai on Kadalmallai describing its trade. In the *Periya-puranam* a vivid description of the city is given which shows that it was an important place even in his time.<sup>4</sup> Mylapore<sup>5</sup> near Madras was a port of Sekkilar's time. Probably it had some trade even before as during the Portuguese days.

Tillai, one of the five important Saiva Kshetras in the south, owed its greatness mainly to its temple which was *the temple* of those days. The facts that its temple was benefited by Chengan<sup>6</sup> and gold-plated by the later Cholas and that Tiruvenkadu, a part of ancient Puhar, destroyed by inundation (about 200 A.D.) is called Adhi Tillai, go to prove that it was a colony of some of the ancient Andanars<sup>7</sup> of the Chola capital at the mouth of the Kavery.

Shiyali which has as many as twelve names in Thevaram and which has the largest number of hymns was a walled town with a celebrated temple often visited by kings.<sup>8</sup> It is a noteworthy fact that the Saiva psalter refers to the learned in the towns of Kanchi and Shiyali. Pattinathar makes a similar reference to the Patasalas and the learned men of Shiyali. It would be ununderstandable how Shiyali, removed from the coast by a distance of six miles, had overseas trade but for the fact that even to-day Tirumullaivayil is a port though small, and the Uppanaru is used by small boats to carry cargo.<sup>9</sup> According to a hymn of the boy saint, Shiyali was the headquarters of a line of princes evidently Chola.<sup>10</sup> Sanbai (Champa), one of its names, is noteworthy being a northern name and probably it was also a name for ancient Puhar whose guardian deity was Sampapathi who has even to-day an old-fashioned, brick-domed temple containing, beside her, two bhutas so terribly described to us in the epic of the anklet.

Milalai was a very big city in those days. It was the city of a Kurumbar chief, one of whose descendants probably was the Perumilalai Kurumbar of

1. *Thev.* I, 180. ஏகம்பம்.

2. *Thev.* III, 81. கச்சிடுநறிக்காரைக்காடு.

5. *Vayalar and Kuripputhondar Puranas.*

6. See *Kurruvan Purana*. The Chola was sometimes crowned there by the 3,000. Was *Kurruvan* of Kalandai near Kanchi the *Dharma* of Koilolugu and the Brahmapuram hymn I, 80?

7. Some of these ancient Brahmin sects are Saiva.

8. *Thev.* I, 1, 42, 104, 127. பிரம்புரம், குரங்கணின் முட்டம், சீகாழி, சீகாழி respectively.

9. *Thev.* I, 128; II, 103; III, 147. சீகாழி, வேணுபுரம், கழுமலம் respectively.

10. *Thev.* I, 80. பிரம்புரம்.

3. *Thev.* VII, 28. ஏகம்பம் மேற்றளி.

4. *Periya*, I, 401.

Sundara's age. It was the chief town of a Kurram or division. It had a big and beautiful temple said to have been visited by princes now and then.<sup>1</sup> Like Tillai, it contains an ancient sect of Brahmins.<sup>2</sup> Arur was, according to Sekkilar, a Chola capital in ancient times.<sup>3</sup> Probably it was a temporary capital for the later Chola kings also who must have gone about visiting such places for religious and political purposes. Appar, besides calling it a big town, speaks of it as Arur where kings worship.<sup>4</sup> Sundara sings of it as a walled town.<sup>5</sup>

The port of Karaikal, even now of some importance, figures in the story of the ancient saint Pey but nothing more is known of it. Nagai figuring in early literature as the capital of Panrinadu or Naganadu with communications with the Naga islands near India has some hymns by Sambandha.<sup>6</sup> But only Sundara<sup>7</sup> mentions its commercial importance. Kazhippalai<sup>8</sup> near Vedaranyam was a port of some importance in the seventh century.

Madura also has a large number of hymns in Thevaram. Its importance has been described in Tamil as well as Sanskrit literature. It was a walled city and the capital of the Pandya.<sup>9</sup> It has always been a wealthy city and its chief attraction has been the beautiful shrine once called Manikkovil. Some of the early literary associations with Madura find mention in Thevaram.<sup>10</sup>

Besides these towns, mention may be made of Anniyur,<sup>11</sup> Karuvili,<sup>12</sup> Kalayanallur<sup>13</sup> (one of the many Nallurs of the time) which contained a mantapa for discourses, a few of the many walled towns of the age.

In this sketch, Mahodai<sup>14</sup> or Vanji and Mathottam<sup>15</sup> in Ceylon, two other ports full of ships, must not be forgotten. It is too well known that Vanji finds a prominent place as a port in early Tamil literature and foreign accounts. Sundara and Sambandha have sung on Kedesvaram or Mathottam.

The above references tend to establish that (1) the present system of Kavery irrigation is pre-Sambandha, (2) there were many towns with peculiarly mediæval characteristics in the age of Sambandha, and (3) many of the modern small ports are very old and were fit to receive the small sailing ships of those days and thus carry on a little overseas trade and much coastal trade.

1. *Thev.* I, 27.

2. The விழிஞ் Brahmins or Mukkanis (Mukkantis?) having top-knots like the 3000 and Soliga Brahmins.

3. *Periya I*, 40, 435.

4. *Thev.* IV, 23 and 26.

5. *Thev.* VII, 109.

6. *Thev.* I, 107; II, 147.

7. *Thev.* VII, 61.

8. *Thev.* III, 55.

9. *Thev.* I, 10; III, 65.

10. *Thev.* VI, 106; VII, 126.

11. *Thev.* V, 33.

12. *Thev.* V, 120.

13. *Thev.* VII, 20 by Sundara.

14. *Thev.* VII, 7.

15. *Thev.* II, 136; VII, 105.

# SURYAPRAGNAPTI.

BY DR. R. SHAMA SASTRY, B.A., PH.D., M.R.A.S.

(Continued from Vol. XVIII, No. 3.)

WE have said that one paryāya for all the stars is 3660. The proof of this is as follows:—

For six stars of half area the amśas are	$67 \times 6 = 402$
For six stars of $1\frac{1}{2}$ area	$6 \times 201 = 1206$
For 15 stars of one whole area	$15 \times 134 = 2010$
For Abhijit	42

Total of the amásas = 3660.

Thus the astronomical measure of the lunar seasons has been dealt with. But, according to popular conception, the measure of a lunar season is quite different. According to it, two lunar months make one lunar season.

The lunar year =  $354 \frac{1}{2}$  days.

Hence one season =  $354 \frac{1}{6} \frac{2}{2} \div 6 = 59 \frac{2}{6} \frac{2}{2}$  days.

Now a Karma month is of 30 days. Hence in one Karma season of two Karma months there are 60 days. Hence compared with this it is usual with the people to consider the lunar season to be short of 1 day. Hence compared with one Karmasamvatsara, the lunar year is nearly 6 days less. These six days are called Avama days.

There is nothing in the time itself to distinguish it as consisting of Avama or Atirātra days. These distinctions are all due to our conception of various forms of months. This is what ancient teachers have taught us of Avamarātras :—

The Karmamāsa is = 30 days.

The lunar month is  $= 29 \frac{32}{62}$  days.

The difference between these two is  $30 - 29 \frac{32}{62} = \frac{80}{62}$ .

This is the fraction which makes Avamarātras. Hence if  $\frac{30}{8\frac{1}{2}}$  parts of a day is the difference between one Karmamāsa of 30 days and lunar māsa of  $29\frac{3\frac{1}{2}}{8\frac{1}{2}}$ , the difference due to one day is  $\frac{1}{8\frac{1}{2}}$ . Hence in 62 days there will be one complete Avamarātra. On the same day (62nd day) the lunar day (tithi) will be 63rd day. Hence on the 61st day, both the 61st and the 62nd tithis will expire. Hence 62nd tithi is, according to popular parlance, as an omitted tithi.

Now, the rainy season consists of 4 months. Hence in this season the 1st Avamarātra will occur in the 3rd parva from Śrāvaṇa and the 2nd Avama

in the 7th parva. Then in the cold season of 4 months, the third Avama will occur on the 11th parva from the first parva of the cycle or in the 3rd parva in the season itself will occur and the 4th in the 15th or 7th parva. Then in the summer season the 5th Avama will happen on the 19th parva and the 6th Avama on the 31st parva. This is according to ancient teaching. But really the 1st Avama will happen on the 4th parva.

Now, regarding the question which tithi will be completed on the 1st Avama day and on what parva, the following ancient verse supplies the formula :—

The formula is of two kinds: one for odd number of tithis; and another for even number of tithis.

(i) In the case of odd number, add one to it, and double the sum.

The product shows the number of the parvas.

(ii) In the case of even number, add one to it and double the sum.

Again add 31 to the product. The sum is the number of parvas.

Now let the question be as follows :—

In what parva or paksha will the pratipath day be Avama and close with the second tithi ?

Now the tithi being one, we take 1; and add 1 to it;  $1 + 1 = 2$ . Doubling this we have 4.

Hence we may say that in the 4th parva or paksha, the pratipath will be Avama and close with the second tithi on the same day.

The reason for this is as follows :—

Now  $4 \text{ parvas} \times 15 \text{ tithis} = 60 \text{ tithis}$ .

Add to it the Pratipath and the second, the two tithis falling on the same day. The sum is 62. This gives no remainder when divided by 62. Hence the 1st Avama day will be the Pratipath.

Or let the question be regarding the second Avama day on the second day closing with the third on the same day.

Here we take 2, the number that is asked.

Adding one to it and doubling it we have  $1 + 2 = 3$ ;  $3 \times 2 = 6$ . Add 31 to this. Hence  $6 + 31 = 37$ .

That is, in the 37th parva or paksha the second lunar day will be the second Avama day and close with the third day on the same day.

Here also  $37 \times 15 \text{ tithis} = 555 \text{ tithis}$ .

The second is lost and the third also closed with the second day. Hence adding 3 to it, we have 558 tithis. This divided by 62 leaves no remainder.

Likewise in the case of other tithis, as follows :—

The 3rd Avama with 4th tithi will happen in 8th parva.

The 4th           "           5th           "           41st "

The 5th           "           6th           "           12th "

The 6th Avama with 7th tithi will happen in 45th parva.

The 7th	„	8th	„	16th	„
The 8th	„	9th	„	49th	„
The 9th	„	10th	„	20th	„
The 10th	„	11th	„	53rd	„
The 11th	„	12th	„	24th	„
The 12th	„	13th	„	57th	„
The 13th	„	14th	„	28th	„
The 14th	„	15th	„	61st	„
The 15th	„	1st	„	32nd	„

Thus in the first half of the cycle, and likewise the same can be found out in the second half.

Now the teacher goes to explain the occurrence of the Atirātras :—

Now if we compare the solar month with the Karma month, we find the difference of a day between a solar and a Karma season ; for

One Karma month = 30 days.

„ solar „ =  $30\frac{1}{2}$  „

∴ Two Karma months = } = 60 „  
One Karma season

Two solar months = } = 61 „  
One solar season

The solar season commences with the Āshāḍha month. Hence in the 4th parva from Āshāḍha there will be one Atirātra day.

The 2nd Atirātra will be at the close of the 8th parva.

The 3rd „ „ „ 12th „

The 4th „ „ „ 16th „

The 5th „ „ „ 20th „

The 6th „ „ „ 24th „

The Avamarātras are due to the lunar year, and the Atirātras are due to the solar year, both being compared with the Karma year.

Now in a cycle of 5 years there are ten Ayanas of the sun and 134 Ayanas of the moon.

The sun moves southward for 183 days

and northwards for 183 „

Hence  $\frac{1830 \text{ days of a cycle}}{183 \text{ of an Ayana}} = 10 \text{ Ayanas.}$

The moon moves southward for  $13\frac{44}{87}$  days

and northward for  $13\frac{44}{87}$  „

Hence  $\frac{1830}{13\frac{44}{87}} = 134 \text{ Ayanas.}$



The solar Ayana days in each year of the cycle are :—

1st	Ayana in the Śrāvaṇa month.
2nd	„ Māgha.
3rd	„ Śrāvaṇa.
4th	„ Māgha.
5th	„ Śrāvaṇa.
6th	„ Māgha.
7th	„ Śrāvaṇa.
8th	„ Māgha.
9th	„ Śrāvaṇa.
10th	„ Māgha.

The formula to find out the parva and the tithi of the solar Ayanas is as follows :—

Take the Ayana number in question. Deduct one from it. Then multiply the remainder by 183 and add to the product thrice the Ayana number *plus* one. Then divide the sum by 15. The quotient will be the number of parvas that have passed and the remainder the number of days in the current parva, the last of that number is the lunar day.

Now, for example, take the 1st Ayana.

∴  $1 - 1 = 0$ . Hence we take the 10th Ayana of the past cycle ; *i.e.*, number 10.

$$\text{Now } 10 \times 183 = 1830 \quad \dots \text{ (i)}$$

$$10 \times 3 + 1 = 31 \quad \dots \text{ (ii)}$$

$$1830 + 31 = 1861 \quad \dots \text{ (iii)}$$

$$\frac{1861}{15} = 124 \frac{1}{3}.$$

Hence we say that the 1st Ayana will occur on the pratipath day after 124 parvas of the previous cycle.

Similarly for the 2nd.

$$2 - 1 = 1$$

$$1 \times 183 = 183$$

$$1 \times 3 + 1 = 4$$

$$183 + 4 = 187. \quad \frac{187}{15} = 12 \frac{7}{15}.$$

That is, the 2nd Ayana will be on the 7th day of Māgha Bahula after 12 parvas in the cycle.

Likewise the 3rd.

$$3 - 1 = 2$$

$$2 \times 183 = 366$$

$$2 \times 3 + 1 = 7$$

$$\frac{366 + 7}{15} = \frac{373}{15} = 24 \frac{13}{15}.$$

That is, the 3rd Ayana will be after 24 Parvas, *i.e.*, one year; hence in the Śrāvaṇa month on the 13th day, Bahula.

Similarly in other cases also.

The tithis and the months for all the ten Ayanas are thus enumerated:—

Śrāvaṇa	Bahula	1	} The five Ayanas in the Śrāvaṇa month.
"	"	13	
"	Śukla	10	
"	Bahula	7	
"	Śukla	4	
Māgha	Bahula	7	} The five in Māgha.
"	Śukla	4	
"	Bahula	1	
"	"	13	
"	Śukla	10	

The formula for finding out the stars on these Ayana days is stated as follows:—

The constant used here is  $573 + \frac{36}{82} + \frac{6}{87}$  muhūrtas.

This constant is found as follows:—

10 solar Ayanas = 67 sidereal months.

$$\therefore 1 = \frac{67}{10} = 6 \frac{7}{10}.$$

In order to reduce  $\frac{7}{10}$  to muhūrtas we proceed as follows:—

$$\frac{1}{10} \text{ of an Ayana} = 27 \frac{21}{87} \text{ days.}$$

$$\therefore \frac{7}{10} \text{ ths} = \frac{27 \frac{21}{87} \times 7}{10} \text{ days.}$$

$$\frac{1830 \times 7 \times 30}{10 \times 67} = 573 \frac{36}{82} = 573 \text{ muhūrtas, } \frac{36}{82} \text{ of a muhūrta and } \frac{6}{87} \text{ of sixty-secondth of a muhūrta.}$$

Multiply this constant by the number of Ayanas *minus* one.

Then deduct from the product  $9 + \frac{24}{82} + \frac{62}{87}$  muhūrtas for Abhijit, 30 for Śrāvaṇa, 30 for Dhanishṭha, 15 for Śatabhishak, 30 for Pūrvābhādra, 45 for Uttarābhādra; then 30 for Revati, 30 for Aśvini, 15 for Bharani, 30 for Krittika, 45 for Rohiṇi, 30 for Mrigaśirah, 15 for Ārdra, 45 for Punarvasu, 30 for Pushya, 15 for Āślēsha, 30 for Māgha, 30 for Pūrvaphalguni, 45 for Uttara-phalguni, 30 for Hasta, 30 for Chitra, 15 for Svāti, 45 for Viśākha, 30 for Anūrādhā, 15 for Jyeshṭha, 30 for Mūla, 30 for Pūrvāshāḍha, 45 for Uttarāshāḍha, as far as possible. Then what remains is the star.

For example, let us take the first Ayana and find the star on the day.

Take 1 and deduct 1 from it. The result is 0. So take the number of the Ayanas in the previous cycle. It is 10.

Then multiply the constant  $573 + \frac{36}{82} + \frac{6}{87}$  by 10.

Deducting from this 819, being the correction for stars from Abhijit to Uttarāshāḍha, *i.e.*, for one revolution.

Now  $819 \times 7$  revolutions = 5733.

$5735 - 5733 = 2$ .

Hence the remainder is  $2 + \frac{50}{62} + \frac{60}{67}$ .

Deduct from this the fraction of correction for Abhijit, multiplying it by 7 times.

Hence  $2 + \frac{50}{62} + \frac{60}{67} - (\frac{24}{62} + \frac{62}{67}) \times 7 = 0$ .

Hence we say that the moon completes the Uttarāshāḍha when the Ayana begins.

Similarly for other stars for other Ayanas.

Now with regard to the stars in which the sun completes the several Ayanas of a cycle:—

The sun will have traversed  $19 + \frac{48}{62} + \frac{30}{67}$  muhūrtas in the Pushya where the 1st Ayana is completed.

This is worked out as follows:—

10 Ayanas are made in 5 years.

1  $\frac{5}{10}$  „ =  $\frac{1}{2}$  a year.

(i) Now 6 stars from Śatabhishak onwards are of  $\frac{1}{2}$  area.

$\therefore$  each being  $33\frac{1}{2}$  sixty-seventh parts,  $33\frac{1}{2} \times 6 = 201$  sixty-sevenths.

(ii) 6 stars from Uttarābhādra onwards are of  $1\frac{1}{2}$  area.

$\therefore 6 \times \frac{3}{2} \times 67 = 603$  sixty-seventh parts.

(iii) The remaining 15 stars are of one whole area.

$\therefore 67 \times 15 = 1005$  sixty-seventh parts.

(iv) For Abhijit  $\frac{21}{67}$  parts.

$\therefore 201 + 603 + 1005 + \frac{21}{67} = \frac{1830}{67}$  parts.

This is equal to one whole sidereal revolution.

Half of this = 915.

Deducting from this 21 for Abhijit, we have 894 parts or Amśas.

Now  $\frac{894}{67} = 13 \frac{28}{67}$ .

Now  $\frac{28}{67}$  multiplied by 30 gives the parts in terms of muhūrtas.  
 $\frac{28}{67} \times 30 = \frac{840}{67} = 10 \frac{20}{67}$ .

Again  $\frac{20}{67} \times 62 = 18 \frac{4}{67}$  sixty-second parts of a muhūrta.

Hence we say that when 10 muhūrtas, 18 sixty-second parts of a muhūrta and  $\frac{84}{67}$  of one sixty-secondth of a muhūrta have elapsed, the 1st Ayana commences.

Now regarding the question, in which star does the moon commence the 2nd Ayana in Śrāvaṇa in a cycle? We proceed as follows:—

The 2nd in Śrāvaṇa is really the third from the 1st in the cycle. Hence we take 3 and deduct one from it; then we multiply the constant by 2, as,  
 $(573 + \frac{36}{62} + \frac{6}{67}) \times 2 = 1146 + \frac{72}{62} + \frac{12}{67}.$

Deduct from this as much as = one revolution.

$$\therefore (1146 + \frac{72}{62} + \frac{12}{67}) - (819 + \frac{24}{62} + \frac{66}{67}) = 327 + \frac{47}{62} + \frac{18}{67}.$$

Deduct from this  $309 + \frac{24}{62} + \frac{66}{67}$  being the correction for stars from Abhijit to Rohiṇi. Then what remains is  $18 + \frac{22}{62} + \frac{14}{67}$ ; that is, that when out of 30 muhūrta parts of muhūrta there have elapsed  $18 + \frac{22}{62} + \frac{14}{67}$  and  $11 + \frac{82}{62} + \frac{58}{67}$  muhūrta parts remain to be passed by the moon, the 2nd Ayana occurs.

Likewise in the case of the sun:—

Here the sun makes 10 Ayanas and 5 of his sidereal revolutions. Hence 2 Ayanas in one revolution. Of these the Uttarāyana always occurs in the Abhijit and the Dakshināyana when there remain in Pushya  $19 + \frac{48}{62} + \frac{88}{67}$  muhūrta parts.

Now the moon makes the 3rd Ayana in the month of Śrāvaṇa in Viśākha when in that star there still remain  $13 + \frac{54}{62} + \frac{40}{67}$  muhūrta parts. As in the 2nd Ayana, here also the sum is worked out as follows:—3rd in Śrāvaṇa means 5th from the beginning. Hence deducting one from it, we multiply the constant:—

$$\therefore 4 \times (573 + \frac{36}{62} + \frac{6}{67}) = 2292 + \frac{144}{62} + \frac{24}{67}.$$

Deduct from this  $2 \times (819 + \frac{24}{62} + \frac{66}{67})$  revolutions.

Then there remain  $654 + \frac{34}{62} + \frac{26}{67}$  muhūrta parts.

Deduct from this  $549 + \frac{24}{62} + \frac{66}{67}$  being the correction for stars from Abhijit to Uttaraphalguni.

Then there remains  $106 + \frac{7}{62} + \frac{27}{67}.$

Deduct again 75 for stars from Hasta to Svāti.

Then the remainder is  $31 + \frac{7}{62} + \frac{27}{67}$ , i.e., when so much has elapsed in Viśākha leaving still  $13 + \frac{54}{62} + \frac{40}{67}$  muhūrta parts the third Ayana in Śrāvaṇa commences.

Likewise, following the same method, it can be ascertained that the moon commences the 4th Ayana in Śrāvaṇa when there remain in Revati  $25 + \frac{32}{62} + \frac{26}{67}$  muhūrta parts.

Similarly the 5th Ayana in Śrāvaṇa commences when the moon has yet to traverse  $12 + \frac{47}{62} + \frac{18}{67}$  muhūrta parts in Pūrvaphalguni.

Likewise the moon will have to traverse yet  $5 + \frac{50}{62} + \frac{60}{67}$  in Hasta when the first Ayana (i.e., Uttarāyana in Māgha) in Māgha in a cycle commences.

At this time the sun will be in the Abhijit.

Proof:—

10 Ayanas occur in 5 revolutions.

1 Ayana occurs in  $\frac{5}{10}$  revolutions.

$$\frac{5}{10} \text{ revolutions} = \frac{1}{2} = \frac{1830}{2 \times 67} \text{ days or 915 sixty-seventh parts.}$$

Now in the previous Ayana  $\frac{2}{6} \frac{8}{7}$  parts of Pushya were passed, leaving  $\frac{4}{6} \frac{4}{7}$  parts behind.

Deducting this from  $\frac{9}{6} \frac{15}{7}$  we have  $\frac{9}{6} \frac{15}{7} - \frac{4}{6} \frac{4}{7} = \frac{8}{6} \frac{7}{7} = 13$  stars, from Āślesha to Uttarāshāḍha. The next star is Abhijit where the Ayana commences with the sun.

The second Ayana in Māgha with the moon commences when in Śatabhishak there remain  $2 + \frac{2}{6} \frac{8}{2} + \frac{4}{6} \frac{6}{7}$  muhūrta parts.

Likewise the third Ayana with the moon in Māgha commences when  $19 + \frac{4}{6} \frac{8}{2} + \frac{8}{6} \frac{8}{7}$  muhūrta parts remain in Pushya.

The fourth when  $6 + \frac{5}{6} \frac{8}{2} + \frac{2}{6} \frac{0}{7}$  muhūrta parts remain in Mūla.

The fifth when  $18 + \frac{3}{6} \frac{6}{2} + \frac{6}{6} \frac{6}{7}$  remain in Kṛittika.

It must be borne in mind that the moon commences the northern or southern movements in those stars in which the sun does; the northern in Abhijit and the southern in Pushya.

Thus while the sun makes ten Ayanas in a cycle, the moon does 134.

Hence by making 134 Ayanas, the moon makes 67 revolutions (complete).

Hence in one Ayana he makes  $\frac{67}{134}$  revolutions  $= \frac{1}{2} = \frac{1830 \text{ days}}{2 \times 67} = \frac{915}{67}$  stars. Here when  $\frac{2}{6} \frac{8}{7}$  of Pushya have elapsed, the southern Ayana was made by the moon.

∴ There remained  $\frac{4}{6} \frac{4}{7}$  star-parts.

Deducting this from  $\frac{9}{6} \frac{15}{7} - \frac{4}{6} \frac{4}{7}$ , we have  $\frac{8}{6} \frac{7}{7} = 13$  stars from Āślesha to Uttarāshāḍha. Hence we conclude that he makes the Uttarāyana in Abhijit.

Likewise he makes Dakshināyana in Pushya when there remain  $10 + \frac{2}{6} \frac{0}{7}$  muhūrta parts. This is found as follows:—

Now in 134 Ayanas there are 67 complete revolutions of the moon.

$$\therefore \quad 1 \quad \frac{67}{134} = \frac{1}{2} \times \frac{1830}{67} \text{ or 915 sixty-seventh parts.}$$

Deduct from this  $\frac{9}{6} \frac{15}{7} - \frac{2}{6} \frac{1}{7}$  for Abhijit.

There remain  $\frac{8}{6} \frac{4}{7}$  parts = 13  $\frac{2}{6} \frac{8}{7}$  stars.

Deducting 13 stars from Abhijit to Punarvasu we have  $\frac{2}{6} \frac{3}{7}$  stars  $= \frac{2}{6} \frac{8}{7} \times 30$  muhūrtas  $= 10 + \frac{2}{6} \frac{0}{7}$  muhūrtas passed in Pushya, when the southern movement of the moon occurs.

### Yogas in a Cycle.

There are ten yogas in a cycle.

- |                     |                      |
|---------------------|----------------------|
| (1) Vrishabhanujata | (6) Chhatrâtichhatra |
| (2) Venukanujata    | (7) Yuganaddha       |
| (3) Mancha          | (8) Ghanasammarda    |
| (4) Manchâtimanha   | (9) Prinita          |
| (5) Chhatra         | (10) Mandukapluta    |

These yogas are said to occur when the sun, the moon, and the star in conjunction, appear to take such form as is implied by the names. Except the 6th which occurs rarely in some particular country the rest happen in all countries. The Chhatrâtichhatra or umbrella-above-umbrella occurs when the moon, the Chitra star, and the sun appear one below the other in the Dakshinâyana. Divide the ecliptic circle into 4 parts by drawing vertical and horizontal diameters. Divide each of the four quadrants into 31 divisions. But in the south-eastern quadrant divide the 28th division into 20 minor divisions, leaving the 29th, 30th and 31st divisions as before. When the moon is just arriving at the 19th minor division after traversing 27 big divisions and 18 minor divisions of the 28th, the Chhatrâtichhatra yoga occurs on some occasions.

### The Two Halves of a Lunar Month.

One lunar month =  $29 \frac{8}{8} \frac{2}{2}$  days =  $885 \frac{8}{8} \frac{0}{2}$  muhûrtas. Of this the white half contains  $442 \frac{4}{8} \frac{6}{2}$  muhûrtas and the dark half also  $442 \frac{4}{8} \frac{6}{2}$  muhûrtas.

The moon is divided into sixteen parts. Of these 15 parts are completely covered by the dark disc of Râhu on the 15th lunar day and on the Pratipath day one part, on the 2nd day two parts, and so on, 15 parts on the 15th day.

The number of diurnal circles of moon in a parva :—

The moon moves through  $14 \frac{1}{8} \frac{6}{2}$  diurnal circles in half a lunar month or 1768 circles in 124 parvas.

The teacher goes on to speak of two moons and the day in which they move through their diurnal circles and of the distinction between sidereal and lunar months.

### Velocities of Planets and Stars.

Among the four, the moon, the sun, the Grahās and the Nakshatras, the sun is quicker than the moon, the planets than the sun, and the stars than the planets. This is ascertained by considering their motions through ecliptic circles. Imagine that the circumference of the circle is divided into 1,09,800 divisions. Now we have to understand the moon's velocity per muhûrta in terms of such circle divisions before we can find the difference in the rates of velocities of the moon, the sun and the stars.

Now the moon completes 1768 half circles \* in 1830 days.

$\therefore$  One circle                „                „                 $\frac{1830 \times 2}{1768}$  days.

$$= \frac{3660}{1768} = 2 \text{ days} + 2 \frac{28}{221} \text{ muhūrtas.}$$

That is, the moon moves through one circle in so much time.

From this we can deduce the moon's velocity in a muhūrta.

Now one circle is divided into 1,09,800 parts.

The moon goes through 1,09,800 parts in 2 days +  $2\frac{28}{221}$  muhūrtas.

Hence in a muhūrta  $\frac{109800}{60 + 2 \frac{28}{221}}$  parts.

$$= \frac{109800}{13725} \times 221 = \frac{24265800}{13725} = 1768 \text{ parts.}$$

That is, the moon moves through 1768 parts of the circumference of a circle divided into 1,09,800 parts in one muhūrta. (i)

Now the sun moves through 1830 such parts in one muhūrta. (ii)

for he completes one circle of 1,09,800 parts in two days or 60 muhūrtas.†

Hence in one muhūrta  $\frac{109800}{60}$  1830 parts.

Now the Nakshatra velocity per muhūrta is ascertained as follows:—

Now each of the stars takes to complete 1835 half circles in 1830 days.

Now each of the stars takes to complete one revolution

∴	“	“	“	2	“	$\frac{1830 \times 2}{1835}$ days.
---	---	---	---	---	---	------------------------------------

$$= 1 \text{ day} \times 29 \frac{307}{87} \text{ muhūrtas.}$$

Now in 59  $\frac{307}{367}$  muhūrtas 109800 parts of one circle are completed.

Hence 1 " , "  $\frac{109800}{21968} \times 367$   
 $= \frac{40296800}{21968} = 1835$  parts. (iii)

Accordingly we say that the moon going through 1768 parts per muhūrta is slower than the sun who goes through 1830 parts per muhūrta and that the stars moving each through 1835 parts per muhūrta are quicker than the sun.

As to grahas, they are of unsettled velocities, as they are liable to retrograde movements (Vakra).

Now it is evident that the sun moves  $1830 - 1768 = 62$  parts more per  
muhūrta than the moon ; (i)

that the stars,  $1835 - 1768 = 67$  parts more per muhūrta than the moon; (ii)

and that the stars  $1835 - 1830 = 5$  parts more per muhūrta than the sun. (iii)

\* On the supposition of two moons.

† On the supposition of two suns,

The moon's diurnal circles and the sidereal month.

The moon makes in 67 sidereal months 884 circles.

Hence „ 1 „  $\frac{884}{67} = 13 \frac{13}{67}$  circles.

Likewise the sun makes in 67 „ 915 circles.

Hence „ in 1 „  $\frac{915}{67} = 13 \frac{44}{67}$  circles.

Similarly the stars make in 67 „ 1835 circles.

Hence „ 1 „  $27 \frac{26}{67}$  half circles.

or  $13 \frac{46\frac{1}{2}}{67}$  whole circles.

Changing the month, and taking the lunar month,  
the moon makes in 124 parvas 884 circles.

Hence „ 2 parvas  $\frac{884}{124} \times 2 = 14 \frac{82}{124}$  circles.

Similarly the sun makes in 124 parvas 915 circles.

Hence „ 2 parvas  $915 \times \frac{2}{124} = 14 \frac{94}{124}$ .

Likewise the stars 124 „ 1835 circles.

Hence 2 „  $\frac{1835}{124} \times 2 = 14 \frac{94}{124}$  circles.

Now taking a karma-māsa, we see that the moon makes  
in 61 karma months 884 circles.

Hence 1 karma month  $\frac{884}{61} = 14 \frac{30}{61}$  whole circles.

or twice the number of half circles.

Likewise the sun makes in 61 karma months 915 circles.

Hence „ 1 „  $\frac{915}{61} = 15$  circles.

Similarly the stars make in 122 „ 1835 circles.

Hence „ 1 „  $\frac{1835}{122} = 15 \frac{5}{122}$ .

Note :—In all these cases, it must be borne in mind that these conclusions are made on the supposition of two moons, two suns, and two stars, making each pair a complete circle a day. Hence these half numbers refer to one of these pairs, *i.e.*, half the number of circles per month.

Now taking the solar month, we see

that the moon makes in 60 solar months 884 circles.

Hence „ 1 „  $\frac{884}{60} = 14 \frac{11}{60}$  circles.

Likewise the sun „ 60 „ 915 circles.

Hence „ 1 „  $\frac{915}{60} = 15 \frac{5}{60}$  circles.

Similarly the stars make in 120 solar months 1835 circles.

Hence „ 1 „  $\frac{1835}{120} = 15 \frac{15}{120}$  circles.

Likewise we can find out the exact number of circles which the moon makes in an intercalary month. But in doing so we cannot use the ordinary cycle of 5 years without involving ourselves in long fractions; for a Yuga consists of 57 months, 7 days 11 muhūrtas and  $\frac{23}{2}$  of a muhūrta, if all the months of a Yuga are converted into intercalary months. (An intercalary year of 13 lunar



months is =  $383 \frac{44}{62}$  days. This divided by 12 gives 31 days, 29 muhūrtas and  $\frac{17}{62}$  of a muhūrta, as the measure of an intercalary month. Hence in a Yuga there are 57 such intercalary months, 7 days, 11 muhūrtas, and  $\frac{23}{62}$  of a muhūrta). So we use the major cycle of 780 years or 156 cycles of 5 years each. Such a cycle converted into intercalary months of the said length will be=8928 intercalary months.

Now the moon makes in 8928 inter months 137904 circles.

Hence                    "                    1                    "                     $\frac{137904}{8928} = 15 \frac{88}{188}$  circles.

Likewise the sun makes in 8928 inter months 142740 circles.

Hence                    "                    1                    "                     $\frac{142740}{8928} = 15 \frac{245}{248}$  circles.

Similarly the stars make in 8928 inter months 143130 circles.

Hence                    "                    in one                    "                     $\frac{143130}{8928} = 16 \frac{47}{1488}$  circles.

We may also find out the number of circles which the moon, the sun and the stars make in a whole day.

Now the moon makes in 1830 days 1768 half circles.

Hence                    "                    1                    "                     $\frac{1768}{1830} = \frac{884}{915}$  half circles.

Likewise the sun makes in 1830 days 1830 half circles.

Hence                    "                    1                    "                     $\frac{1830}{1830} = 1$  half circle.

Likewise the stars make in 1830 days 1835 half circles.

Hence                    "                    1                    "                     $\frac{1835}{1830} = 1 \frac{2}{782}$  half circle.

For one complete circle the same process may be employed.

The moon makes one complete circle in  $1 \frac{81}{442}$  days.

The sun                    "                    "                    2 days.

The stars                    "                    "                     $1 \frac{365}{887}$  days.

Likewise we may find out the number of circles which the moon, the sun and the stars make in a cycle.

The moon traverses in a muhūrta 1768 parts of the ecliptic circle divided into 1098 parts.

There are in a Yuga 54900 muhūrtas.

Hence in a Yuga he traverses  $54900 \times 1768 = 97063200$  parts.

Hence  $\frac{97063200}{109800} = 884$  circles.

Likewise the sun traverses in 2 days one circle.

Hence                    "                    "                    in 1830 days  $\frac{1880}{2} = 915$  circles.

Similarly the stars move in one muhūrta through 1835 parts of the ecliptic circle divided into 109800 divisions.

Hence in a Yuga  $1835 \times 54900 = 100741500$  divisions.

These divided by 109800 = 1835 half circles.

The author goes on to refer to the views of 25 astronomical schools on the disappearance of old moons and the reappearance of new moons, muhūrta after muhūrta; on the situation of the sun about 1000 yojanas above the earth, the moon 1500 yojanas above; the diametrical measure of the spheres of the sun and the moon; the number of suns, moons, their wives, their satellites the number of stars.

Then referring to eclipses of the sun and the moon, he criticizes the views of others who say that Rāhu swallows either of them in part or as a whole and that the planets tearing out Rāhu's belly, come out of it. In his own view eclipses are nothing but the covering of the sun's or the moon's disc partially or wholly by the dark vimāna or car of Rāhu. This Rāhu is called Parva Rāhu as distinguished from Nitya Rāhu who causes the phases of the moon by covering 1/16th part of the moon's disc every day upto 15/16 parts on the 15th lunar day in the dark half of the month and again disclosing those parts upto 15/16th parts on the 15th in the white half of the month.

The least interval between one solar or lunar eclipse and another is six months and the greatest is 32 months for the lunar and 48 years for the solar eclipse.

Referring to Grahas or planets, he says that they are 88 in number. Their names are :—

- |                   |                    |
|-------------------|--------------------|
| 1. Angāraka       | 16. Karbataka      |
| 2. Vikalaka       | 17. Ajakaraka      |
| 3. Lohityaka      | 18. Dundubhaka     |
| 4. Saniścara      | 19. Sankha         |
| 5. Adhunika       | 20. Sankhanabha    |
| 6. Pradhunika     | 21. Sankhavarṇabha |
| 7. Kana           | 22. Kansa          |
| 8. Kanaka         | 23. Kansanabha     |
| 9. Kanakanka      | 24. Kansavarṇabha  |
| 10. Kanavitanika  | 25. Nīla           |
| 11. Kanasantanaka | 26. Nīlāvabhāsa    |
| 12. Soma          | 27. Rūpi           |
| 13. Sahita        | 28. Rūpyāvabhāsa   |
| 14. Asvasana      | 29. Bhasma         |
| 15. Karyopaga     | 30. Bhasmarāśi     |

- |                       |                  |
|-----------------------|------------------|
| 31. Tila              | 60. Vardhamanaka |
| 32. Tilapushpavarnaka | 61. Pralamba     |
| 33. Daka              | 62. Nityaloka    |
| 34. Dakavarna         | 63. Nityodhyota  |
| 35. Kaya              | 64. Svayamprabha |
| 36. Vaudhya           | 65. Avabhāsa     |
| 37. Indrāgni          | 66. Śrēyaskara   |
| 38. Dhūmaketu         | 67. Khemankara   |
| 39. Hari              | 68. Abankara     |
| 40. Pingala           | 69. Prabhankara  |
| 41. Budha             | 70. Arajā        |
| 42. Śukra             | 71. Virajā       |
| 43. Brihaspati        | 72. Aśōka        |
| 44. Rāhu              | 73. Vītaśoka     |
| 45. Agasti            | 74. Vivarta      |
| 46. Manavaka          | 75. Vivastra     |
| 47. Kāmasparśa        | 76. Viśāla       |
| 48. Dhura             | 77. Sāla         |
| 49. Pramukha          | 78. Suvrata      |
| 50. Vikata            | 79. Anivritti    |
| 51. Visandhikalpa     | 80. Ēkajāti      |
| 52. Prakalpa          | 81. Dvijāt       |
| 53. Jatala            | 82. Kara         |
| 54. Aruna             | 83. Karika       |
| 55. Agni              | 84. Raja         |
| 56. Kāla              | 85. Argala       |
| 57. Mahākāla          | 86. Pushpa       |
| 58. Svastika          | 87. Bhava        |
| 59. Sauvastika        | 88. Kētu         |
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# STUDIES IN BIRD-MYTHS No. XXI.—ON AN ÆTIOLOGICAL MYTH ABOUT THE GOLDEN-BACKED WOODPECKER, THE INDIAN SPOTTED WOODPECKER AND OTHER SPECIES.

BY SARAT CHANDRA MITRA, ESQ., M.A., B.L.

THE Golden-Backed Woodpecker (*Brachypternus Aurantius*), which can be easily recognized by its possessing a back of old gold colour and the scarlet crest, is widely distributed throughout India though it can hardly be met with in the higher hills. The Indian Spotted Woodpecker (*Picus Macii*) is also found throughout Northern India, though they are specimens in the Lucknow Provincial Museum, which have been obtained from Sikkim and Terai.\*

This latter species also occur in the District of Rangpur, in Northern Bengal, for Mr. Vas says, "The Indian Spotted Woodpecker (*Picus Macii*) and the common green barbet are frequently seen, and the voice of the Cuckoo (*Koel*) and the Indian Mocking Bird (*Kokil*) is frequently heard in the hot weather, though the birds themselves are not often visible."†

With regard to the two aforementioned species of woodpeckers, Dr. W. T. Blanford says:—" *Brachypternus Aurantius* (The Golden-Backed Woodpecker) is found throughout India and Ceylon.

By far the commonest and most familiar of Indian woodpeckers, this is often seen about villages where there are trees, and especially in mango-groves. It is also found in thin forest, and in Sind in tamarisk-scrub and feeds much on ants; it is a bold noisy bird with a loud screaming call, often uttered on the wing."‡

The *Picus Macii* is also known as *Dendrocopus Macii* (The Fulvous-Breasted Pied Woodpecker). "This species occurs throughout Lower Bengal; it is common around Calcutta."§

The most remarkable habit possessed by the woodpecker is that of tapping the bark of trees and thereby searching for grubs which form their principal article of diet. For the purpose of exploring for insects he always pitches himself up the bark, sounding the trunk with his beak for insects as

\* *Vide* the "Catalogue of the Birds in the Provincial Museum, N. W. P. and Oudh, Lucknow", on the 1st April, 1889. Printed by order of the Museum Committee, Allahabad. N. W. P. and Allahabad Government Press, 1890. P. 46. (Serial No. 126.)

† *Vide* "Eastern Bengal and Assam District Gazetteers, Rangpur". By J. A. Vas, B.A., LL.B., Bar-at-Law, I.C.S., Allahabad. Printed at the Pioneer Press, 1911. Page 14.

‡ *Vide*, *The Fauna of India Series*—Birds, Vol. III, pages 58—60.

§ *Ibid.*, pages 39—40.

he goes. The guiding principle of his life is ever "*excelsior*", for he always goes upwards along the trunk though he can sometimes slip backwards or laterally round the trunk of the tree if he feels inclined to do so.

The question now arises : Why does the woodpecker tap the bark of the tree with his beak ? This question has been answered by Prof. Low, who says, "*The woodpecker is quite as keen in detecting by sound the presence of insects beneath the bark of a tree, and the spotted fly-catcher is aided in his pursuit of flying insects by the sounds they emit while on the wing.*"\*

Two other most noteworthy peculiarities in the anatomy of this feathered carpenter is its "stiff wiry tail, which he never cocks up. It serves as an excellent support to him as he clings vertically to the bark of the tree trunk." The second noteworthy physical characteristic is its "hard chisel-tipped beak, which contains a most curious tongue which is worm-like and armed with a many-barbed horny tip. This he can shoot out with great facility to some distance, as its base is supported by a pair of bony springs; and altogether it is an admirable instrument for exploring crevices and persuading any grub which may lie hid therein to come out to dinner."†

The next remarkable habit possessed by the woodpecker is that of uttering a ringing cackle while he wings his flight, with outstretched neck and legs tucked up onward to some tree-trunk which he intends to explore for insects. Mr. Frank Finn says that this propensity for "irresponsible and irrelevant hilarity" is a characteristic of all members of the woodpecker tribe. Hurdis, the author of *The Village Curate*, has also recorded this habit with respect to the English Green Woodpecker (*Gecinus Viridis*) as will appear from the following passage from his aforementioned poem :—"The Golden Woodpecker laughs loud at nothing."

It must be noted here that, even by the greatest stretch of imagination, the epithet "*Golden*" can hardly be applied to the Green Woodpecker of England. ‡

The woodpeckers derive their name from their habit of tapping the trunks of trees with their bills. The primitive myth-makers of Bengal, who were keen observers of Nature, noted this habit and explained the origin thereof by inventing the undermentioned myth :—

In very ancient times, there lived in a forest a very pious *sannyāsi* (or ascetic) who was a great adept in the art of playing upon the stringed instrument called the *ektārā*. When, in the evening, after finishing his daily

\* *Vide* the article entitled, "Nature's Fine Faculties. Some Unexplained Problems." Published in the *Calcutta Daily Englishman* of Monday, the 21st June 1926.

† *Vide*, *The Birds of Calcutta*, by Frank Finn, B.A., F.Z.S., M.B.O.V. Third Edition. Calcutta. Thacker Spink & Co. 1917. Pages 78—83.

‡ *Op. cit.*, page 78.

devotions and prayers, he would sit and play upon the *ektārā*, all the beasts and birds of the forest would flock round him to hear the music.

Right in front of this forest was a great mountain on whose other side were situated the habitations of men. During the autumn of every year, the ascetic used to pay his annual visits to the people who dwelt in those habitations, and, towards the close of autumn, would finish his round of visits and return to his native forest and to his companions—the beasts and the birds.

One year, on the advent of the month of *Bhādra* (August—September), the ascetic, taking his *ektārā* with him, started on his annual tour in the villages which were situated on the other side of the mountain.

On the very first day of his tour, he arrived towards the close of the day at a village which he had never visited before and, coming across a cottage, entered it. He found that an old woman, who was naturally tart-tempered, was cooking therein, asked for a night's lodging in her cottage and for a meal. But, cross-tempered as she was, she point-blank refused to give him the asked-for shelter and food, saying that she had none to give him.

But, nothing daunted by her refusal, he further said: "My good old woman! If you have no food to offer to me, well and good. But I am very thirsty. Therefore, do be good enough to give me a drink of water." Thereupon, the old woman again flew into a fit of rage and refused to furnish him with the asked-for drink, saying that there was no water in her cottage to give him to drink.

Seeing the old woman's outrageous conduct, the ascetic got very angry and said: "Old woman, as you have refused to give me food and drink, though I am very hungry and thirsty, henceforth you will have to search for your food in the holes and crevices of trees and you will have to quench your thirst with the water of the rain that falls from heaven."

No sooner were these imprecatory words uttered by the *sannyāsi* (or ascetic) than the old woman was metamorphosed into a long-billed woodpecker which flew into and sat upon a *bael*-tree (*Ægle marmelos*) which grew by the side of her cottage, and tapped the trunk thereof with her beak. Up to the present day, this bird cannot quench her thirst by drinking the water of tanks and ponds, but has to slake it by opening her beak wide and catching whatever quantity of rain-water would fall thereinto.\*

On analyzing the preceding ætiological myth, we find that the main incidents thereof may be stated as follows:—

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\* For a fuller version of this ætiological myth see the article entitled, "*Kāth Thokrār Jan-makathā*" (or "The Birth-Story of the Woodpecker") at pages 448—451 of the Bengali monthly magazine *Mouchāk* (published from No. 90-2, Harrison Road, Calcutta) for Fālguna 1332, B.S. (February—March 1926 A.D.)

(1) A hungry and thirsty ascetic asks for food and a drink of water from an old cottage-woman.

(2) The old woman truculently refuses to give him the same.

(3) On this, the angry ascetic pronounces a curse upon her, saying that she will have thenceforth to search for her food in the holes and crevices of the trunks of trees and to quench her thirst by opening her beak wide and catching the rain-water therein.

(4) As soon as this curse is pronounced, she is metamorphosed into a woodpecker which possesses the habit of tapping the trunks of trees with her beak.

The principal *motif* of the myth is that the old woman committed a heinous sin by not furnishing the hungry and thirsty guest with food and water and that she was, therefore, rightly punished by being transformed into a woodpecker.

The question, therefore, arises: Is there any other ætiological myth, in Indian folklore, analogous to the preceding one?

We must answer this question in the affirmative and state that there is current, in Eastern Bengal, an ætiological myth which shows how an undutiful son, who neglected to supply his dying mother with a drink of water, was, for this dereliction of duty, metamorphosed into a skylark.\* Furthermore, there is current, in Southern India, an ætiological myth which sets forth how a cowherd refused to supply the sacred cow with a drink of water when she was thirsty and that, for this inhuman act, the God Vishnu punished him, for evermore, by metamorphosing him into a hornbill and provided his bird-shape with a huge bill which would enable it to quench its thirst only by turning its head upwards whenever it would rain.†

The same method of punishing a bird by condemning it to quench its thirst by drinking rain-water only, was also meted out to the woodpecker in a bird-myth which is current in France. It is stated therein that, at the time of the creation of the world, the task of excavating the seas, lakes and rivers, was assigned to the birds. But the woodpecker alone refused to join in this work. For its indolence and disobedience, it was condemned to dig, for ever, the wood of trees with its bill. A further punishment was also meted out to it by condemning it to the effect that it would be able to quench its thirst only by drinking of the water of heaven. It is, moreover, believed that for this reason only, the woodpecker's head is so frequently turned upwards.‡

\* Vide my article entitled, "*Studies in Bird-Myths* No. III.—On two *Ætiological Myths about the Skylark*, in *The Quarterly Journal of the Mythic Society* (Bangalore), Vol. XIV, pages 106-110.

† Vide the article on *Bird-Mythology* in the *Calcutta Review*, No. CCXXV (for July 1901), pages 72-73.

‡ *Op. cit.*, pages 72-73,

## STUDIES IN PLANT-MYTHS No. I.—ON AN ÆTIOLOGICAL MYTH ABOUT THE NIGHT-FLOWERING JESSAMINE.

BY SARAT CHANDRA MITRA, ESQ., M.A., B.L.

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THE Night-Flowering Jessamine (*Nyctanthes Arbor-tristis*) is a small tree which is grown in many parts of India for the sake of its beautiful flowers which are offered to the gods and from which a perfume is made. It is, however, valued for the yellow tubes of the corollas of its flowers which yield a beautiful orange-coloured dye. It is known in Sanskrit as *Sephālikā*, in Bengali as *Siuli* and in Hindustani as *Harsinghar*.

The old Dutch traveller, J. H. Linschoten who travelled in Portuguese India more than three hundred years ago, has published in his *Travels* the following pathetic myth accounting for the origin of this tree which he calls "The sad tree."—This tree is called '*sad*' because it only flowers at night throughout the year (?), and may be reckoned among the marvels of (Indian) vegetation. Even at sunset no flowers appear, but, soon after the expiration of half an hour, it is conspicuous for the beauty of its numerous blossoms which fill the nostrils with their sweet odour. With the rising sun these flowers fall off and the ground is quickly covered with them, as it were in grief at the demise of the tree, the latter reviving again in the evening, proceeds to flower and lose its flowers, alternately by night and day \* \* \* \* In the Malay language it is called "Suigacy", and by the inhabitants of the Deccan "Parisatico" or "Pul". They explain the origin of the name by the following Indian legend:—*There was a certain nobleman named Parisatico, whose exceedingly beautiful daughter was wooed by the sun; and when dazzled by his charm, she surrendered to the importunity of such a glorious lover, she was basely deserted by him for another damsel with whom he had become enamoured. Hence the grief of the deserted, who in a fit of sad despair put an end to her own life. The corpse was placed on a funeral pile and consumed by the flames, and they positively assert that this tree sprang from the ashes of this deserted beauty and in token of her grief and indignation it shed its flowers with the rising sun and loses its petals, preferring to exhibit its ceaseless woe during the gloomy hours of the night*".\*

The incident of the Night-Flowering Jessamine springing from the ashes of the deserted princess bears a striking resemblance to the well-known Indian legend which accounts for the origin of the Tulsī or the sacred Basil

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\* *Vide the Indian Gardening of the 30th November 1899, p. 216.*



(*Ocimum sanctum*) from the ashes of Brindā who immolated herself on a funeral pyre with the corpse of her deceased husband Jalandhar, king of the Asuras.

The root-idea lying at the basis of these two ætiological myths is the savage belief that souls of dead men and, for the matter of that, the different parts of the bodies of dead persons may grow up into trees or blossom forth as flowers. This conception is common in folk-lore and in poetry. Based on this belief is the pretty poetical concept of flowers springing up from the graves or ashes of buried lovers, of which an instance occurs in the ballad of "Fair Margaret and Sweet William".

In the story of Tristram and Ysoude, an eglantine springs up from the grave of Tristram and winds its arms about the image of the Ysoude. The great bard of Avon has immortalized this concept in the words of Lærtes over Ophelia :—

"Lay her i' the earth,  
And from her fair and unpolluted flesh  
May violets spring."

and Tennyson says :—

"And from his ashes may be made  
The violet of his native land."

The incident of the sun-god's wooing the daughter of king Parisatiko and of his subsequently deserting her basely bears a striking similarity to the incident of the sun-god's marrying a human girl named Gaurī, which is described in some folk-songs\* still chanted in the district of Barisal in Eastern Bengal.

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\* *Vide* my article entitled, "On the Cult of the Sun-God in Mediæval Eastern Bengal" published in the *Journal of the Department of Letters*, Vol. XV, pp. 149 to 200.

## KANNADA PASSAGES IN THE OXYRHYNCUS PAPYRI No. 413.\*

BY S. SRIKANTAIYA, ESQ., B.A., B.L., M.R.A.S.

IN the Archæological Report for 1926, Dr. R. Shama Sastri, Director of Archæological Researches in Mysore, gives a prominent place to a consideration of the identification of certain passages in an unknown language occurring in a Greek farce of the second century A.D.

As a result of the excavations carried out in Lower Egypt at the instance of the Biblical Archæological Association, at Oxyrhynchus a large find of Papyri was made in 1897. Texts and translations were then completed and the Oxyrhyncus Papyri No. III was published by Messrs. B. Grenfell and A. S. Hunt in June 1903 under the auspices of the Egyptian Exploration Fund. Among the new classical fragments in that volume, No. 413 is a Greek play or farce, based upon the story of a Greek girl carried off to the coast of a country bordering on the Indian Ocean and rescued by her brother, with some passages in an unknown language. In the *Hermes* (Berlin), Vol. XXXIX, p. 307 ff. and in the *J.R.A.S.* for 1904, Dr. E. Hultzsich sought to identify a few of the passages with words in the Kannada language. Mr. B. L. Rice, in the Mysore Archæological Report for 1904, considered this identification interesting and significant. According to him, in the Papyrus, "occur what are meant to be some Indian words, and these, it has been conjectured, are no other than Kannada, the prevalence of which in parts of the west coast renders the supposition not improbable. Of the two or three short sentences used, a Greek translation is given of a portion, and they are thus known to refer to a drinking scene..... Dr. Hultzsich.....with some modifications of the originals produces (Kannada) sentences.....The subject is certainly of interest, and connects the language of Mysore with early classical antiquities in an unexpected manner." Mon. S. Levi refers to the fragment of a Greek farce, played in Egypt, which has its scene laid in India, and has for its topic the adventures of a young Greek, Charition, who finds herself in the power of an Indian king, and observes that by its importance for the history of the Indian theatre, the fragment calls for special study.<sup>1</sup> According to Dr. G. A. Grierson, the oldest specimen of Kanarese is, according to Dr. Hultzsich, contained in a Greek play preserved in a papyrus of the second century A.D.<sup>2</sup> Rao Bahadur R. A. Narasimbachar, in the *Lives of Kannada Poets*, first

\* A paper read before the Mythic Society on the 28th February, 1928.

1. *Ind. Ant.*, XXXIII, p. 12.

2. *Linguistic Survey of India*, Vol. IV, p. 653.

published in 1907 and since republished, also refers to it.<sup>3</sup> Further on, he says in Kannada — 'ಕೆಲವು ಕನ್ನಡ ತಬ್ಬಗಳು ಮೊರೆಯುತ್ತವೆ',<sup>4</sup> though he carefully adds a foot-note that *Dr. Hultzsck* reads a few sentences of the Greek farce as : ಬೇರೆ ಕೊಂಡ ಮಧು ಪಾತ್ರಕ್ಕೆ ಹಾಕಿ ; ಪಾಸಂ ಬೇರೆತ್ತಿ ಕಟ್ಟಿ ಮಧುವಂ ಬೆರೆತ್ತುವೆನ.

Dr. Kittel died at Tübingen in 1903, apparently without the knowledge of the papyrus or without having been able to give a consideration to it. Dr. Shama Sastri has taken considerable trouble in identifying every unknown word in the Greek papyrus. It is hoped that his splendid effort will engage the attention of scholars as it deserves.

As regards the play, the authors observe : " Both sides of this remarkable papyrus are occupied with literary compositions of an unusual type. On the *recto* are three columns, of which the two latter are almost complete, of a low comedy or farce, written in a good sized semi-uncial hand, the *dramatis personæ* being carefully distinguished and stage directions added. Adhering to the right of the third column about half-way down is an uninscribed fragment of some size, showing that the work did not extend beyond half a column more at most. On the *verso* are, firstly, two columns in a much smaller and more cursive hand, preceded by a few letters of a third upon the projecting fragment already referred to, from what may best be described as a mime, which is mainly, at the best, a monologue. The second of the two complete columns is shorter than the other, and there are some six centimetres of blank space below it. Secondly, adjoining this to the right is another column of dialogue in the style of the *recto*, and with the same characters, written in a somewhat larger and more careful hand, but evidently by the same person who was responsible for the foregoing mime. This column was intended to supersede the latter portion of the first column of the *recto*.....To assign both sides of the papyrus to one scribe is out of the question, but we are not inclined to think that the two documents were separated by a considerable interval of time. The hand of the *recto* we attribute with little hesitation to the Antonine period ; that of the *verso* no doubt falls within the second century.<sup>5</sup>

In the words of the publishers of the Papyri, the scene of the play is the coast of a barbarian country bordering on the Indian Ocean, and the subject is the adventures in those remote regions of a party of Greeks, chief among whom is Charition, the heroine of the drama. Such themes are familiar from the pages of the early Greek romances, and the plot of this piece seems to have run very similar to theirs.<sup>6</sup> Charition had not improbably been

3. Introduction, p. 16.

4. *Ib.*, Kan. Intro, p. 7, i.e.. Some Kannada words occur.

5. *Oxyrhynchus Papyri*, III, p. 41.

6. Cf. Euripides; Helen. The real Helen takes refuge in the royal tomb of the Egyptian king wherefrom she is rescued, from falling into their hands, by Greek sailors who arrive there on their way from Troy, with her husband Menelaus.

carried off in the usual way by pirates, and had so come into the hands of the barbarians, whose Greek-speaking king is one of the characters of the play. She had apparently taken up her abode in a temple; and the present fragment describes her rescue by her brother and others who had arrived by sea, and who succeed in effecting their escape after making her captors drunk. The buffoon supplies the comic element in the farce.<sup>7</sup>

The entire dialogue in the play or farce has been reconstructed, with marvellous dexterity by Dr. R. Shama Sastri. According to him, the scene is Malpi, a harbour near Mangalore, into the hands of whose king Charition falls a captive. The Greek lady is said to be familiar with the language of the country to carry on a conversation with its king, who is also familiar with the Greek tongue. The buffoon is ignorant of the Indian dialect but yet some non-Greek words are assigned to him. Two more Greek characters in the play are acquainted with the unknown language.

Dr. Hultzsch who first essayed the identification of some unknown words with the Kannada language details several reasons in its support:—

A. 1. The farce is concerned with a lady's stranding on the borders of the Indian Ocean and the king of that country addresses his retinue by the words "Chiefs of the Indians".

2. The king and his retinue use their own language.

3. Twice one of the Greeks accompanying the lady gives the Greek translation of a few Indian words:—

(a) l. 59 — *Brathis* means 'let us draw lots for the shares',  
l. 64—*brathis* = *bēr adisi*.<sup>8</sup>

(b) l. 66 — The words *Kottos* and *Zopit* are rendered into 'give to drink quickly'.

*Kottos* = *Kuḍisu* = give to drink.

(c) l. 61 — means 'having poured a little wine into the cup separately'  
= *Bere koncha madhu pātrakke hāki*.<sup>9</sup>

(d) ll. 83-4. Dr. Hultzsch agrees with Dr. Grierson's conjecture that the first word *pānoum* may be *pānam* = drink. Then, if Kannada, *pānam bere etti katti madhuvam ber ettuvēnu*, i. e., 'having taken up the cup separately and having covered (it), I shall take wine separately'.<sup>10</sup>

(e) l. 85, *Parak* is *Parāku*, i. e., attention.<sup>11</sup>

NOTE.—Dr. Hultzsch is unable to make out the other words and sentences in the 'barbarian language', which Dr. R. Shama Sastri has now identified as Kannada.

7. *Oxy. Pap.*, p. 42.

8. Cf. Note 12, p. 13 of the *Mys. Arch. Rep.*, 1926. Also p. 46, l. 59, *Oxy. Pap.*

9. Cf. Note 16, p. 14 of the *Mys. Arch. Rep.*, 1926.

10. Cf. Note 43, p. 15 of Do.

11. Cf. Note 44, p. 15 of Do. ; blessing.

B. The Indian language employed being Kannada, the site of Chari-tion's adventures must be a port on the west coast of India between Karwar and Mangalore. Though now parts of North and South Kanara, where, besides Kannada, Konkani and Tulu are spoken, this territory was formerly ruled over by Kanarese princes.

C. The unknown author of the Greek farce may have acquired his knowledge of the Kanarese words and sentences either from a native of Kanara who resided in Egypt, or from a Greek who had learnt the vernacular during his stay in India.

D. The existence of commerce by sea between Africa and India at the time renders it possible. The *Periplus* and Ptolemy mention a large number of ports on the Indian west coast by name. After Hippalus, the south-west monsoon was availed of by the Greek mariners to go to India from Arabia or Cape Guardafui.

E. (i) In the list of inhabitants dating from the time of Vespasian, an Egyptian is registered as absent in India.<sup>12</sup>

(ii) In an (hitherto misread) inscription of the temple of Redēsiye, on the route from the port of Berenikē, on the Red Sea, to Apollinopolis Magna (now Edfu), on the Nile, Prof. Wilcken discovered the name of an Indian traveller who halted there to worship at the shrine of the Greek god Pan.<sup>13</sup>

F. The existence of Roman imperial coins found in several parts of South India, in Malabar, Cannanore, the Coimbatore district, on the Coromandel Coast, at Madura, etc., goes to suggest the existence of a Roman Settlement and a mint at Madura.<sup>14</sup>

G. Indian Astronomy was greatly influenced by the Greeks:

(i) Romaka Siddhanta gave rules for the meridian Yavanapura (of the Greeks) i.e., Alexandria. The results of Greek science which were known to the author were imported from Africa by sea to the port of Broach on the Narmada river and hence up-country to Ujjain.<sup>15</sup>

(ii) *Gargya-Samhita* (first century B.C. Prof. Kern) mentions the Greek astronomers as well as the Greek kings of the Punjab.

(iii) A calendar fragment discovered at Milet and belonging to the second century B.C. gives several weather forecasts on the authority of the Indian Kallaneus.<sup>16</sup>

12. Kenyon: *Greek Papyri in the British Museum*, Vol. II, p. 48, l. 42 ; p. 49, l. 92, cf. Prof. Wilcken.

13. Dr. Hultzsich says the record belongs to the period of the Ptolemies and the name of the record may be a hellenised form of the Hindu word Subhānu. Quaere, why not bhānu ?

14. A silver coin purchased by Dr. Hultzsich in the Bangalore bazaars bore on the obverse the head of Ptolemy I facing the proper left, and on the reverse an eagle, sitting on the thunder bolt and facing the proper right, with a legend in Greek round the eagle. cf. *J.R.A.S.* 1904.

15. We are also supposed to get our names of the days of the week from the Greeks.

16. Information furnished by Prof. Wilcken to Dr. Hultzsich.

(iv) Kalanos, not the Gymnosophist who accompanied Alexander and ascended the funeral pyre at Susa, turns up at the embassy to Augustus. He comes from Broach and burns himself at Athens, where a tomb is raised to him.

H. The Græco-Roman records of Indian embassies are full of similar odd and incredible statements.<sup>17</sup> To Augustus, "embassies of kings were frequently despatched from India, which had never before been seen with a leader of the Romans."<sup>18</sup>

From these, Dr. Hultzsch concludes a lively intercourse between India and Occident about the time of the birth of Christ and says there can be nothing strange in the circumstance that the author of the Oxyrhyncus farce or his informant must have been acquainted with the Kannada language.<sup>19</sup>

### Kannada Language.

The Kannada language is now spoken in the whole of Mysore and Coorg, surrounding parts of the Madras Presidency, in the Nilgiris, in Madura by the immigrants, in parts of Central Provinces and Berar, in the southern districts of the Bombay Presidency and in the western parts of the Nizam's Dominions, by a population totalling about eleven millions. About the ninth century A.D., it was spoken from the river Kaveri to the river Godavari. The group of Dravidian languages as a whole, however, covered the entire peninsular India from the Vindhya mountains and the Narmada river in the north to Cape Comorin in the south, excluding Orissa in the east and the Gujarati and Marathi districts in the west, and also in the northern half of Ceylon. Besides, a Dravidian dialect, Brāhūi, is spoken in the far north-west in Beluchistan.<sup>20</sup>

Malayalam is said to be a very ancient off-shoot of Tamil. Mr. Sten Konow considers very many similarities to exist between the Etruscan and Dravidian languages.<sup>21</sup> Telugu which has a very rich literature, is mainly spoken on the Coromandel coast, north of Madras, and the adjacent interior right up to the centre of Hyderabad.

Whether the Dravidian civilization or the Indo-Aryan Brahmanical culture be older, the fact remains that the materials for a study of the early Dravidian institutions are scanty,<sup>22</sup> and it is even more so with regard to the Kannada country.

Tamil was the language of all the kingdoms in the south, in the early centuries A.D. Malayalam was not in existence. The golden age of Tamil literature may be ascribed to the first three centuries A.C.<sup>23</sup>

17. *The Indian Travels of Apollonius of Tyana, etc.*, by Mr. Priaulx, London. 1873.

18. *Monumentum Ancyranum* edited by Mommsen, Chap. 31.

19. *J. R. A. S.*, 1904, pp. 399-405.

20. *Lives of Kannada Poets*, Intro., p. xi.

21. *J. R. A. S.* for 1904, p. 45.

22. *Oxford History of India*: Vincent Smith (1920), Intro. xi.

23. *Ib.*, p. 144.

The country was known as Dravida. Limyrike—Damirike—i.e., Damir-  
ntry. At that time, beyond Barygaza (Broach), the adjacent coast  
ended in a straight line north to south and was called Dachina-Bades.<sup>25</sup>

The antiquity of the Kannada language is well known. The word  
'urnata' occurs in Varahamihira's *Brihatsamhita*, a work of the sixth century.  
is also found in Somadeva's *Kathasaritsagara* due perhaps to its mention  
the *Paisachi Brihatkatha* of Gunadhya. This reference goes back to the  
liest days of the Christian era. A Tamil poem of the second century  
D., *Silappadikaram*, refers to Kannadar.<sup>26</sup> Speaking of a Karnata dynasty  
Nepal, the Nepalese Chronicle, *Swayabhupurana*, refers to a Karnata king  
nyadeva, who conquered the whole country in Sravana Sudi 7 of Nepal  
mvat 9 or Saka Samvat 811, i.e., 889 A.D., who ruled at Bhatgam and  
s succeeded by his son Gangadeva who was followed by his son Narasimha-  
va. Dr. R. Shama Sastri, from a reference to the Ganga rulers of Mysore,  
inclined to suggest that the reference may be to the Ganga king called  
anniyadeva, who was also known as Bhutuga.<sup>27</sup>

According to the Ceylonese Chronicle, *Mahawanso*, in the third century  
C., on the despatch of missionaries to foreign parts after the third Convo-  
tion, for the establishment of Buddhism, the thêra Mahadeva was deputed  
Mahishamandala, and the thêra Rakkita to Wanawase, i.e., Banavase just  
outside the borders of the Sorab taluk, in the Shimoga district.<sup>28</sup> Banavase,  
ie capital of the Kadamba kingdom, is mentioned in the edicts of Asoka,  
ad was known as Vaijayanti or Jayanti. Asoka's mission to Mysore gains  
onfirmation from his inscriptions at Brahmagiri, Siddapura and Jatinga  
amesvara Hill, in the Molakalmuru taluk of the Chitaldroog district.

The Kadambas were of Brahmin descent and an independent dynasty  
uling in the districts now comprising North and South Kanara and western  
Mysore, up to the sixth century A.D. Mayuravarman, the first king of the  
Kadambas, conquered the country by fighting the Pallavas who must have  
ucceeded the Nagas.<sup>29</sup> A Banavase inscription, said to belong to the first  
or second century A.D.<sup>30</sup> calls the country round Nagakhanda. A lead coin  
ound in 1888,\* at Chandravalli near Chitaldroog bears the name of  
Sadakana-Katalaya-Maharathi. An inscription of Malavalli, Shikarpur

24. *The Periplus of the Erythrean Sea*, by W. H. Schoff (1912), Longmans Green & Co.,  
p. 205.

25. *Ib.*, p. 43, § 50.

26. *Lives of Kannada Poets*, Intro. xv.

27. *Mys. Arch. Rep.* for 1926, pp. 26-27.

28. See chap. XII.

29. *Ancient History of the Deccan*, by G. Jouveau-Dubreuil (1920), p. 57.

30. *Mysore and Coorg*: B. L. Rice, p. 202.

\* Now in the Museum, Bangalore.

taluk, Shimoga district,<sup>31</sup> belongs to the second year of Haritaputa-Vinhukonda-Chutakula Manda-Satakarni, king of Vijayanti and the Banavase inscription referred to is of his 12th year. This king had a daughter who joined her son in the making of a gift to a Naga. The son was called Sata or Sivaskanda-Naga-Sri. The lady was the wife of a Maharathi.<sup>32</sup> From these, Mons. Dubreuil concludes that the Chutus succeeded the Andhras in Mysore and in Aparanta near Bombay. Sivaskanda-Naga-Sri may have ruled over the territory of Chitaldroog.<sup>33</sup> His name was remembered even in the time of the Kadambas.<sup>34</sup> Further, coins containing the image of a ship with two masts are found almost exclusively on the coast between Madras and Cuddalore, with the legend Sri-Pulamāvi (Rapson). The Ujjain symbol indicates the Satavahana dynasty, who therefore ruled over Kanchi. Again, another inscription of the last king of that dynasty, a Pulamāvi, shows that prince Skanda-Naga was his great general. Nagas were powerful when the Satavahana dynasty came to an end. One of these royal families of Naga origin took their place and were called Chutus. Almost all the ancient Pallava kings were their contemporaries and ultimately succeeded them.<sup>35</sup> Referring to the existence of Indians in Armenia between B.C. 130 and A.D. 300, Mr. J. Kennedy says that two Indian chiefs, Gisane (Kisane) and Demetr (Temetr), rebelling unsuccessfully against the king Dinaskhe (Dinaskey), fled westward with their clan and found shelter with Valarshak, or Valarsaces, the first Arsacide Monarch of Armenia (149-127 B.C.). They founded Vishap or Dragon (Town). In the neighbouring town of Ashishat, the pantheon of all the gods of Armenia, they set up replicas of the idols they worshipped in India. Fifteen years later, they were murdered by the king. Their sons Kouar (Guevar), Meltes (Meghtes), and Horian continued to hold the canton of Taron and divided the land between themselves. Three towns were founded and temples built. In 304 A.D. St. Gregory appeared and overturned their faith, baptising over five thousand idolaters. Vishap in Armenian being Nagpur, these people must have been Naga worshippers.<sup>36</sup>

Banaouasei is mentioned by Ptolemy.<sup>37</sup> Hiuen Tsiang's Kou-Kin-Na-Pu-Lo is said to refer to it. If so, Buddhism was well established in this part of the country.<sup>38</sup>

Like Banavase, Punnata is referred to by Lassen. Ptolemy says beryl is found there. Col. Yule in his map of Ancient India places it near Seringapatam, about seventy miles to the south-east.<sup>39</sup> According to Mr. Rice,

31. *Epigraphia Carnatica*, VII, Sk. 263.

32. *Kanheri Inscription*, No. 1021 of Prof. Luden's list.

33. *Epigraphia Indica*, VII, p. 51.

37. *Ancient India as described by Ptolemy*, by J. W. McCrindle, p. 178.

38. *Life of Hiuen Tsiang*, by Beal (Trubner's Oriental Series), p. 146.

39. *Indian Antiquary*, Vol. XII, p. 13.

34. *Dubreuil*, pp. 48-56.

35. *Ib.*, p. 47.

36. *J. R. A. S.* (1904), p. 309.



Punnata was the name of an ancient division in the extreme south of the old Kongu kingdom, at a later date called Padinad. As regards beryl, the best beryls are, according to Pliny, those which have the greenness of pure sea-water, and come from India, seldom found elsewhere. Padiyur<sup>40</sup> in Onarapuram taluk, Coimbatore district, contained mines which were almost the only source<sup>41</sup> known at the time for good beryls. Few gems were better appreciated by Romans or Indians. Vaniyambadi in the Salem district was also said to possess a mine (R. Sewell).

### Tamil Land.

Outside Banavase and Punnata, other references in ancient works happened to be to the towns on the west coast. Those we are concerned with were included in one or other of the kingdoms of the Tamil land, and the Tamil land of the earlier days was much more extensive than now where the Tamil language is spoken and included the Kannada, Malayalam and Tulu-speaking countries. Ceylon was in close touch with the Tamil-speaking mainland. No doubt, the Telugu-speaking country was noted for its cotton manufactures and diamond mines but commerce supplied the wealth required for civilized life and the Dravidian was not afraid to cross the seas. The sea-borne foreign trade of the Tamil states was due to its wealth in gold, pearls, conch shells, pepper, beryls and choice cotton goods.<sup>42</sup>

Wealthy cities sprang up in the south. Their material civilization was of a high degree and attracted the attention of other powers. Megasthenes heard of the power of the Pandyan kingdom, and the names of the states of Pandya, Chera and Chola are mentioned in Asoka's edicts.<sup>43</sup> Asoka mentioned a fourth minor kingdom Keralaputra, later on absorbed in the Pandyan kingdom.

While the Mauryan Empire, even during Asoka's days, did not extend beyond northern Mysore, and the Kushān and Gupta empires were confined to the north of India, the Andhras who were reckoned powerful even in the time of Megasthenes and whose historical dynasty may have been established about the time of Asoka's death, are found exercising authority in the regions of the Western Ghats soon afterwards.<sup>44</sup> Their dominion stretched right across the Deccan from sea to sea and they engaged in wars with both the dynasties of the Western Satraps, *viz.*, the early Kshaharata line with its capital in the Western Ghats and the somewhat later family ruling in Ujjain. Both the Satrap dynasties were of foreign origin, and associated with the Sakas.<sup>45</sup> The Andhra kings assumed the position of protectors of Hinduism

40. 60 miles from the Mysore frontier, (R. Sewell).

41. *Early History of India*, Vincent Smith, p. 400.

42. *Ox. His. Ind.*, pp. 14-15.

43. The Second Rock Edict of Asoka. See *Asoka*: Vincent A. Smith, p. 115.

44. *Ox His. India*, p. 119.

45. "Traces of a Scythic descent are to be found among the Kattes of Kattywar at this day"—Letter from Sir G. le. G. Jacob, read at the Royal Asiatic Society. Feb. 19, 1872.

and of the caste institution. The most powerful of the later Andhras was Gautamiputra Yagna Srī who reigned about A.D. 173-202.

The Pandyan kingdom<sup>46</sup> extended from Nelcynda to Komar,<sup>47</sup> its western boundary being the southern range of the Western Ghats,<sup>48</sup> and with the increase in the direct trade with the west, the name Pandion became better known at Alexandria than that of Porus and ultimately took its place. About 20 B.C. the Pandions were the only Indians who had realized<sup>49</sup> the advantages of a European alliance. The 'Pandion' of the first Roman embassy was said to be a Rana of Ougein. Lythic records in the Pandya country are in the alphabet of the Asokan period. Buddhist faith had been firmly established in the very centre of Malabar, in a place called Sri-Mula-Vasam, now under the sea. As in the early coinage of the Greeks, the heraldic symbol served with the Pandion as a stamp of authority and a fish was used for the purpose. Roman soldiers were enlisted in the service of the Pandions and other Tamil kings.<sup>50</sup> Their tents were guarded by powerful Yavanas.<sup>51</sup> Yavana ladies are said to have carried arrows and given them to the kings when required while hunting, etc.<sup>52</sup> In the *Mahabharata*, reference can be found to the *Yavana* wives of Saindhava.

While the Pandyan kingdom, the earliest of the three Tamil states, extended beyond the Ghats and included Travancore,<sup>53</sup> it was later on divided before the time of the Asokan inscriptions.<sup>53a</sup> Before the fourth century A.D. the Chera dominions comprised the western coast known as Kerala as far as Gokarna and Goa, and Kerala was administered by Viceroys residing at Muziris (Cranganore).<sup>54</sup> The coast country from and beyond the Pandion kingdom was the Chola, i.e., Coromandel, the largest, richest and the most prosperous—the Ma'abar of the Saracens. The Chola fleet sailed up to the mouths of the Irawady and the Ganges and to the distant Malayan Archipelago.<sup>55</sup>

The most important of the highways of the ancient world were those that joined Nineveh and Babylon to the Deccan and Pataliputra, or Egypt and Arabia to Ceylon and China.<sup>56</sup> The Yue-Chi, Indo-Scythian or Kushān kings of the first and second centuries A.D., evidently maintained active commercial relations with the Roman empire, while they attempted at the

46. *Periplus*, p. 80, § 54, p. 211.

47. i.e., is included the Tinnevely district and extended as far north as the Palghat gap.

48. *Mt. Bettigo of Ptolemy*, p. 59.

49. *Ancient Indian Shipping and Maritime Activity*: Dr. Radhakumud Mukerji, pp. 137-8.

50. *Early His. Ind.*, pp. 400-401.

51. *Cf. Tamils 1800 Years Ago*, by Kanakasabhai.

52. This information is given to me by a Kannada scholar who prefers anonymity.

53. *Periplus*, § 54, p. 211.

54. Eliot, *Coins of India*, p. 3.

53(a) *Ib.*, p. 238.

55. *Ox. His. Ind.*, p. 144.

56. *Footfalls of Indian History*, by Sister Nivedita, p. 94.

same time to extend their trade eastwards.<sup>57</sup> Maritime activity prior to the days of the Portuguese was confined to commerce and no thought was given to occupation or conquest. From Southern India were exported goods by sea to the Roman provinces, or through the overland routes in the north, and were paid for with Roman gold.<sup>58</sup>

In ancient times, parts of the west coast were called the Pirate Coast. Ariake in Ptolemy's time was divided among three chiefs, one of whom belonged to the dynasty of Sadineis and ruled the wealthy commercial people occupying the sea-board. According to the *Periplus*, Sandanes, after becoming master of Kalliena (Kalyana), formerly of the house of Saraganes the Elder, subjected its trade to the severest restrictions. Thus, if Greek vessels entered its port even accidentally, they were seized and sent under guard to Barygaza, the seat of authority.<sup>59</sup> Lassen suggests Sandanes to have been the agent or representative and Saraganes one of the great Satakarni or Andhra dynasty.

The coast of Konkan was well known as the pirate coast. It extended from about Chaul to Nitra, the Mangaruta of Kosmas and the present Mangalore. Richly freighted merchantmen continually plying along the coast, particularly those which left the Egyptian ports for India, carried troops on board well armed for their defence. As against this statement of Pliny, Mr. Campbell suggests that by *Ariake Andron Pieraton*, Ptolemy did not mean the pirates at all but was referring to the Andhra-bhritiyas who ruled over the Konkan and some parts of the Deccan.<sup>60</sup> J. W. McCrindle, however, says the reference is to the pirates. According to him, from the few words in the *Periplus*<sup>61</sup>—and in these places there are pirates—the inference is that the south Konkan and Kanara were more particularly infested by pirates. This is the fourth minor or Satiya kingdom of the Asokan inscriptions.

The antiquity of Hindu trade in East Africa is established by Speke.<sup>62</sup> The Puranas describe the mountains of the moon and the Nyanza lakes, and refer to the source of the Nile as 'The Country of Amara'—the name of the district lying north of the Victoria Nyanza. The interested reader is referred to a most illuminating article contributed to the *Asiatic Researches*, instituted in Bengal, Vol. III (1799), No. XIII on Egypt and other countries adjacent to the Nile from the *Ancient Books of the Hindus* by Lt. Francis Wilford. On page 297 of that volume, he says—"It appears, indeed, that a free communication

57. *Ox. His. Ind.*, p. 141.

58. C. J. Brown : *Coins of India* (Heritage of India Series), p. 34. Pliny laments the drain of Roman gold, year by year.

59. *Ptolemy*, p. 39.

60. *Bombay Gazetteer*, (Thana District), Vol. II, p. 415 n.

61. § 53, pp. 203-204.

62. *Discovery of the Source of the Nile*, Chaps. I, V and X.

formerly subsisted between Egypt and India, since Ptolemy acknowledges himself indebted for much information to many learned *Indians* whom he had seen at Alexandria; and Lucian informs us that pilgrims from *India* resorted to Hierapolis in Syria; which place is called in the Puranas, at least it appears to me, *Mahabhaga*, or the station of the Goddess *Devi*, with that epithet. Even to this day the *Hindus* occasionally visit, as I am assured, the two *Jwala-Mukhis*, or springs of Naptha in Cusha-Dwipa within; the first of which dedicated to the same goddess, with the epithet *Anayasa*, is not far from the Tigris; and Strabo mentions a temple, on that very spot, inscribed to the Goddess *Anaias*." The second one, a spring with a flaming mouth, is near Baku, when the *Hindus* attempted to visit the sacred islands in the West. He also refers to the account of Cornelius Nepos that certain *Indi* or *Hindus* were shipwrecked on the shores of the Baltic, but conjectures it was a pilgrimage,<sup>63</sup> while it was in the course of a voyage of commerce according to McCrindle that these *Indians* were driven by storm into Germany, and Q. Mettelus Celer received them from the king of the Suevi.<sup>64</sup> Lt. Wilford says that he believes in the assertion of the Brahmin Pandits, after examining their sacred books, that a great intercourse anciently subsisted between India and countries in the West.<sup>65</sup>

Lt. Wilford has taken enormous trouble to decipher the Puranic legends regarding Egypt and has given maps illustrating his identification.

Calitata was Ethiopia, Nubia and Egypt; Nile takes its rise from the lake of the Gods—Amara—in the region of Sharma, between the mountains of Ajagara and Sitanta, parts of Somagiri or Mountain of the Moon, etc.<sup>66</sup>

In page 327 *et. seq.* of the same volume, we find a detailed reference to the Krishna legend and the Yaduvamsa. "During the infancy, however, of Krishna, the persecuted<sup>67</sup> Yadavas emigrated from India, and retired to the mountain of the exterior Cusha-Dwipa or Abyssinia." Their leader was Yatu and they are called Yadavas. The mountains are called after them. The people are now called Ourémidré or Ardwemidré, *i.e.*, the land of Arwe, the first king of that country. The Indian emigrants are described as a blameless, pious and sacred race and the genuine Ethiopians are said by Stephanus of Byzantium, by Eusebius, by Philostratus, by Eustathius, and others to have come originally from India under the guidance of Actus, or Yatu.<sup>68</sup> I must leave you to the volume of Wilford for any detailed references; I may, however, in passing, invite your attention to the following:<sup>69</sup> "Such have been, according to the Puranas, the various emigrations from India to Cusha-Dwipa; and hence part of Africa was called India by the

63. P. 297.

66. P. 303.

64. McCrindle: *Ancient India*, p. 110.

67. By Kamsa.

68. P. 328.

65. P. 298.

69. P. 367.

eks. The Nile, says Theophylact, flows through Libya, Ethiopia and India. The people of Mauritania are said, by Strabo, to have been Indians or Indus, and Abbyssinia was called Middle India in the time of Marco Paolo. Where Ovid speaks of Andromeda, he asserts that she came from India; but .....the scene of her adventures was the region adjacent to the Nile. The entry between the Caspian and Euxine had the names both of India and Ethiopia. Even Arachosia is called White India by Isidorus;.....Yellow India of the Persians, and the yellow Indians of the Turkish geographers (are mentioned).....we are positively assured by Herodotus that the Oriental Ethiopians were Indians; and hence we may infer that India was known to the Greeks, in the age of Homer, by the name of Eastern Ethiopia....."

The Hindu trade with Abbyssinians, etc., in existence before the birth of Christ is also referred to in the *Periplus*.<sup>70</sup> Indians had also settled in Arabia.<sup>71</sup> In the early centuries of the Christian era, they were settling down on the Chinese coast. Berossus writing c. 350 B.C. says crowds of strangers lived in Babylon. Babylon, after its destruction by Sennacherib, was rebuilt and beautified (seventh and sixth centuries B.C.). It overthrew its rival Nineveh. With Nebuchadnezzar, she became the wonder of the world and the greatness lay in her vast and expanding trade with the East.

The Greeks must have heard of India and the river Indus as early as the sixth century B.C. as Hecateus refers to it in his *Geographical Treatise*.<sup>72</sup> In the fourth century B.C. Alexander's tutor wanted him to get him an Indian scholar. Pythagoras who had visited Egypt was considered to be a disciple of the Brahmins.<sup>73</sup> According to Plutarch, Homer read in Asia and the children of the Persians, Susians and Gedrocians sang the tragedies of Euripides and Sophocles. One Kalanos, a Gymnosophist at Taxila, left India with Alexander the Great, and burned himself on a funeral pyre at Sousa. The founding of Alexander's Empire brought to the East an expansion of Greek culture and promoted an exchange of commodities. In the words of Plutarch, Alexander's deeds civilized Asia. Diodorus (later half of first century B.C. and early A.D.) refers to the king of Palibothra as a lover of the Greeks. Dio Chrysostom's (the age of Plutarch) Orations confirm that Homer's poems were sung by the Indians who had translated them into their own language. Aelian, a contemporary of Philostratus, refers to Indians and the kings of Persia as translating and singing Homer. Apollonius of Tyana travelled with Damus and was for four years a guest of the Brahmins in the

70. § 14, p. 87; § 53, pp. 203-204.

71. Lassen: *Ind. Alter.*, II, p. 150.

72. Prior to Alexander, India was known to the Greeks as a country which by sea was to be reached by way of the Euphrates and the Persian Gulf—*India as known to the Ancient World* by Gauranganath Banerji, p. 10.

73. *Frag. His.*, III, §§ 238-239. See Apollonius of Tyana's *Indian Travels*.

first half century A.D. Born about 4 B.C., he came to explore the wonders of India and get acquainted with the learning and wisdom of the Brahmins. He was a Pythagorean philosopher and met Iarchas at Taxila and disputed with Indian Gymnosophists. He reached India through Khorasan, the Hindukush and the kingdom of Kabul. The *Periplus* of the Erythrean Sea (81, 96 A.D.) was a manual of Roman, or to be more exact, Egyptian trade with India. The geography of Ptolemy (A.D. 138, 161) belongs to the reign of Antoninus Pius. The expedition of Alexander and the *Indica* of Arrian belongs to the period A.D. 150-160. Strabo who was born about 63 B.C. and who was living in A.D. 21, Pliny who laments the annual drain of Roman gold to India, *viz.*, 550 mill. sesterces (80 lakhs) have already been referred to. The life of Apollonius of Tyana was published by Philostrastus after A.D. 217. Clemens of Alexandria (*d.* 220 A.D.), Archelaus of Carrhe (278 A.D.), Hierocles who visited and travelled in India in the fifth century A.D. and describes the Brahmins as abstaining from flesh meat, are among the others who wrote on India.

Great cities in the East sprang up and by means of their intellectual and material civilization were destined to be the centres of a new empire. Moneys long stored up circulated in the markets; the philosophy of the Vedanta and the Upanishads as well as the Astronomy of the Chaldæans became available to the Greeks.<sup>74</sup>

Several distinct trade routes on sea, as by land, sprang up and it was found that the sea voyage round the Makrân coast was not difficult. Exchange of ideas between India and Europe became more frequent with the formation of Greek kingdoms in Western Asia. About the middle of the third century B.C. was established the Graeco-Bactrian monarchy and certain Indian districts were subdued by Greek kings. The Hellenic influence on Indian art, the modification in Buddhist teaching by contact with the Greek gods, and the influence of Buddhist ideas on Christian doctrine are referred to as some of the results. 'The notions of Indian philosophy and religion which filtered into the Roman Empire flowed through channels opened by Alexander,'<sup>75</sup> for Europe was till then almost ignorant of India.

Egypt had become wealthy mainly owing to the Indian trade and her trade with Arabia Felix. They were carried from the ports of the Red Sea to the Mediterranean but it was not known whence the trade came. They were carried by the Arabs through the deserts to the Persian Gulf and from there to Cossier and to the Troglodytic Berenice<sup>76</sup> on the opposite coast.

74. G. N. Banerji : *India*, p. 718.

75. *Ox. His. Ind.*, p. 67.

76. Sea-port on the southern frontier of Egypt where the Romans met the fleet intended for India. Mussel harbour, *i.e.*, Myos Hormos or Ras Abu Somar was the principal port of Egyptian

In the course of these attempts at cheaper means of getting Indian products, the Greek sailors of Euergetes made a settlement in the island of Dioscorides (Socotra) in the Indian Ocean and there met the trading vessels from India and Ceylon. Greek was the only language spoken there till it fell under the Arabs.

Pliny says: "To those who are bound for India, Ocelis is the best place for embarkation. If the wind called Hippalus happens to be blowing, it is possible to arrive in forty days at the nearest mart in India, called Muziris. This, however, is not a desirable place for disembarkation, on account of the pirates which frequent its vicinity; nor is it very rich in articles of merchandise. Besides the roadstead for shipping is at a considerable distance from the shore, and the cargoes have to be conveyed in boats either for loading or discharging.

"At the time I am writing these pages, the name of the king of the place is Caelobotrus. Another port and a much more convenient one is that which lies in the territory of the people called Nelcyndi, Bacare by name. Here king Pandion used to reign, dwelling at a considerable distance from the mart in the interior, at a city known as Madeira."

By the time of Herodotus, the navigation of the Red Sea had been established. Frankincense and myrrh of Arabia Felix and cinnamon and cassia from beyond India or Ceylon were supplied. Tides are referred to as a phenomenon. Skylax's voyage from the Indus to the Persian Gulf and cotton and bamboos of India and the gold-digging ants as large as foxes are referred to.

The commerce of Ethiopia, India, Arabia and Egypt itself converged on the cosmopolitan city of Alexandria. Before the discovery of the monsoons and the time of Claudius, Indian trade through Egypt with Europe was not much. In 20 B.C. there was a mission to Augustus from 'king Pandion', the Pandya king of Madura, in southern India. Strabo attributes the embassy to a Pandion rather than a Porus but connects it with the Indian who burned himself at Athens. At Antioch, about 22 B.C., these Indian ambassadors, perhaps, were met on their way to Augustus Cæsar by Epidaphne Nicolas Damascenus and their letter of credentials was in Greek.<sup>77</sup> Allusions to this first Roman embassy are made by Horace in his Odes. Florus and Suetonius refer to it. Dio Cassius (194 A.D.) speaks of its reception at Samos (B.C. 22-20) and mentions Zarmanos as accompanying it. Hieronymus (A.D. 380) in his translation of the *Canon Chronicon* of Eusebius alludes to it but places it in 26 B.C. (third year of the 188th Olympiad). Plutarch refers to an Indian in the suite of Augustus who put an end to his life and to his monument being known as the Indian's tomb. "Zarmanochegas, an Indian, a native of Barga, having immortalized himself according to the custom of his country, here lies"

77. Alexander Polyhistor: *Frag. His.*, § 91, 4-419.

—is the inscription at Athens on the tomb of the Indian. Damascenus suggests he was either accompanying the embassy or was attached to it though the letter was stated to be in the name of Porus. According to Apollonius of Tyana, he may be a Hindu, bearing a name Zarmanos Chegan, Sanskrit Çramanacharya, which points him out as of the Buddhist faith, and as proved by his death, a priest earnest in his faith. His companions may have also been Hindus, and perhaps the representatives of a Hindu and possibly a Buddhist prince.<sup>78</sup> “Whether because he was of the Sophists and therefore out of emulation, or whether because he was old and it was the custom of his country, or whether as a show to the Athenians and Augustus who had gone to Athens, expressed the determination to die and put an end to his existence. And having been firstly initiated in the mysteries of the two gods held out of their due course for the initiation of Augustus, he afterwards threw himself into the burning pile.”<sup>79</sup>

The period of the first Roman embassy was the time when India was over-run by the Yue-chi. About 25 B.C. Kujula Kadphises (Yue-chi) subdued the modern Afghanistan and about A.D. 10, Huomo Kadphises conquered north-west India. The Indo-Scythian Empire followed in the wake. The Scythian, though subject to the Parthian kings, occupied the lower Indus. “The Buddhist influence thus spread in Asia and Eastern Turkistan became the bridge on which the Indian manners and customs and above all Indian religion passed both to China and Central Asia.”<sup>80</sup> Indo-Greek and Indo-Parthian princes continued to govern the principalities in the Kabul and on the North-West Frontier. Gondophernes reigned between A.D. 20 and A.D. 48. The name is said to be Parthian or Persian. St. Thomas, according to early legends, is considered to have preached Christianity in his dominions. There is also another tradition according to which the Apostle Thomas was martyred at Mailāpm (Mylapore) near Madras.<sup>81</sup>

Trade between south India and the Roman Empire was extensive in the first and second centuries A.D. It first started in the luxuries of life<sup>82</sup> and later extended to cotton and industrial products. The discovery of the monsoon helped its expansion. It was largest from Augustus to Nero (A.D. 68). It was checked and perhaps temporarily stopped by Caracalla's massacre of the people of Alexandria in A.D. 215. Under the Byzantines, the trade was with south-west India, *i.e.*, Travancore and south-west coast, and commerce with the Deccan and the interior declined.<sup>83</sup>

78. P. 78. 79. Cf. Dio Cassius. 80. G. N. Banerji : *India*, pp. 33 and 36.

81. V. A. Smith agrees with the later tradition. *Ox. His. India*, p. 126.

82. *e.g.* pepper, spices, fine muslin, perfumes, unguents, pearls, precious stones.

83. In the Flavian period there was exclusive trade with the Malabar coast. G. N. Banerji : *India*, p. 24. Cf. also *J.R.A.S.* (1904), p. 591. [Sewell concludes from coins discovered in India.]



The second embassy belongs to the first half century A.D. According to the *Periplus* it was in 41 A.D. Pliny gives the story of the second embassy. It was the result of an accident. A freedman of Annius Plocamus<sup>84</sup> was carried off by a gale to Hippuros,<sup>85</sup> a port of Ceylon, where he was hospitably and kindly received. The Raja of Ceylon learnt the principles of the Roman justice from him and the visit culminated in an alliance. Rachias and three others<sup>86</sup> were sent to Rome. Plocamus learnt the language of the country he visited in about six months. On the next occasion, Sopater was sent from Rome and presented to the Ceylonese monarch, who was called Chandra Mukha Siva (41-52 A.D.)<sup>87</sup> The ambassadors from Ceylon in Rome spoke a language which had not previously been heard there and which the freedman of Plocamus alone could interpret and with which even he was but imperfectly acquainted.

It must be pointed out that Donald Fergusson suggests Pliny's Taprobanian embassy did not come from Ceylon but Sumatra was Taprobane.<sup>88</sup>

An Indian embassy during Trajan's time (107 A.D.) is said to have been present at the shows given by the Emperor to his people. There is a suggestion that it may have been despatched by Kadphises II (Yue-chi) announcing his conquest of North-Western India.<sup>89</sup>

Strabo says : A certain Indian, as he was discovered to be afterwards, was brought to the king of Egypt by the coast guards of the recesses of the Arabian Gulf, who said they had found him half dead and alone on a stranded ship, but that they did not know who he was or whence he came, since they did not understand his language, and he could not speak Koptic. The king Eurgetes II (B.C. 146-117 ?) gave him to the charge of the man who would teach him Greek. After he had learnt Greek, the Indian explained that on his voyage from India, by a strange mischance he mistook his course and reached Egypt in safety, but only after having lost all his companions by starvation. His story was doubted : he then promised to guide the king's men to India. Eudoxus of Cyzicus went to and returned from India with a cargo of perfumes and precious stones. He went again a second time and came

84. *Periplus*, p. 8.

85. The Ophir of Solomon. Cf. Lassen, Kudremala—a port of Ceylon, on the Aripipo-ar. Ptolemy (p. 44) places a Hippocura on the Malabar coast. Others refer to Ghoda-bandar on the Thana Strait. Ghoregaon in Kolaba (Mr. Campbell). Many places could so claim the identification. If the Greek traders did not translate but adapted native names to their own pronunciation and idiom, what would be the result?

86. They told Pliny of the Serae, who dwelt beyond the Mounts of Emodi, whom Rachia's father had visited and who would trade with and show themselves to the people. Referring to this in *J.R.A.S.* (1904), J. Kennedy says: The Cheras occupied Mysore at this time; their territory extended to the sea. The ambassador's reference to a fair race, etc., compares with the description of Sulemain in the ninth century A.D.

87. G.N. Banerji: *India*, p. 23.

88. *J.R.A.S.* (1904), p. 541.

89. *Periplus*, p. 187.

across people whom he had to conciliate and made a list of some of their words. He set sail again a third time on a great ship with two masted boats as those of pirates. He put music girls on board, and physicians and other artisans. He finally came to people who spoke the same words as those he had made a list of before and learnt they were the same men as other Ethiopians and neighbours of the kingdom of Bogus. He did not reach India.<sup>90</sup> According to Strabo, young female musicians of Western origin were articles of import, certain to please in India. Professionally there was little to choose between them and the 'young well-made girls intended for debauchery' offered by the Greeks to the kings of the ports of Gujrat along with musical instruments.<sup>91</sup>

Clemens of Alexandria (192--217 A.D.) says that Brahmins despised death and set no value on life because they believed in the transmigration of souls and the Semnoi (Buddhist Sramanas) worshipped a kind of pyramid, beneath which they imagined that the bones of a divinity of some kind lay buried. He distinguished clearly between Bramanai and Brachmanai.<sup>92</sup> He referred to Brahmins as neither drinking wine nor tasting animal food.

Callistratus (A.D. 250) describes a statue of a drunken and reeling Hindu.

Archelaus of Carrhe (278 A.D.) and St. Jerome both mention Buddha by name. India and Buddha occur in his account of his disputation with the heresiarch Manes at Chana in Mesopotamia and Cedeenus refers to Manes as a Brahman. Buddha's story was given in the eighth century A.D. by John of Damascus as the life of a Christian Saint. Buddha himself has been canonized by the Christian Church as St. Josephat (ಬೀದಿಸತ್ಯ) and included in the mythology of Pope Gregory XIII. According to Richard Garbe and V. A. Smith, Buddhism influenced the early development of Christianity which in its turn coloured some of the later Hindu doctrines and creeds.<sup>93</sup>

Dionysaics (A.D. 360--420) is a poem in forty-eight books written by Nonnus of Panopolis in Egypt to celebrate the triumphs of Bacchus and his conquest of India. It is often regarded as a Western version of the *Mahabharata*. Bacchus encounters and makes drunk and captive an Indian army under the Astrais in Bithynia near the lake Astracis. Later on, he meets and defeats, in Syria, a powerful army commanded by the son-in-law of the

90. Strabo, Book 2, 3, 3-4. Strabo did not believe the story he narrated.

91. *Ind. Ant.* (1904), Vol. XXXIII, p. 12.

92. The reference in ancient works to *Brahmanai Magoi* is said to mean sons of the Brahmins (G. C. Campbell). It is further said that by this reference Ptolemy implied a colony of Persian priests settled in India or Brahmins who had adopted the tenets of the Magi. It is interesting to recollect the existence of *Haiga Makkalu* in the Shimoga district.

93. Cf. Kalidas Nag : *Greater India*.

Indian king Deriades (Duryodhana).<sup>94</sup> After the Syrian encounter, Blemmys, king of the Erythrean Indus but subject to Deriades, submits to Bacchus and settles with his people in Ethiopia.

Thus we find that for thousands of years before the Greeks grew out of the savage state or prior to the Phœnician exploits in the Mediterranean or the Atlantic, the countries around the Persian Gulf were the home of civilization and culture. Gradually, Egypt and Ancient India entered into the group but the centre of trade continued as before. The growth of civilization in Ancient India was responsible for an active merchant marine trading to the Euphrates and the Tigris and to the Eastern Seas. The Greeks overcame the jealousy of the Arab traders on the African coast in course of time, who, however, mostly retained the commerce of the Red Sea. Precious stones, spices and incense went in increasing quantities for the service of the Egyptian gods, from India<sup>95</sup>.

In course of time, the centre of gravity shifted beyond the valley of the Nile and the Euphrates to the peoples of the north and the succeeding centuries witnessed the struggle for the discovery and mastery of the routes through which Indian trade passed<sup>96</sup>. Gradually, the Romans acquired a taste for the precious things of the East. They had to pay tolls to the Parthian Empire and to the Arabic kingdoms. They tried to avoid it and get control of the sea-borne route to India.

Maritime activity was chiefly in the hands of the Dravidians though the Aryans had a share in it. The Indian traders settling in Arabia, Africa and on the coast of China must have included a large percentage of Dravidians. As early as the third century B.C., Berossus has recorded the presence of crowds of strangers in Babylon.

The division of the Greek nation, occupying an important social position in the Roman Empire, comprised some of the Macedonians; and the cities of Alexandria and Antioch, the second and third cities in the Empire for wealth, population, size and influence were chiefly peopled by Greeks.<sup>97</sup> Philosophy lent a splendour to the Greek name. The teachings of the Indian sages were echoed and reflected in the Western world.<sup>98</sup> After the Antonines, the real representatives of the intellectual supremacy of the Hellenic race were to be found in the cities of Asia, Egypt and Syria.<sup>99</sup> Greek art is said

94. He was known in Greece through the Greeks who had visited India or the Hindus who visited Alexandria. We also know that the relations of the Bactrian Greeks with the Hindus were many and intimate. Dionysius is Gisane or Krishna. Cf. Lt. Wilford's article on 'Egypt and the Nile' already referred to.

95. *Periplus*, Intro., pp. 3-4.

97. George Finlay: *Greece under the Romans*, pp. 84-5.

98. G. N. Banerji: *India*, p. 15.

96. *Ib.*, Intro., p. 4.

99. Finlay, p. 102.

to be reflected in the Gandhara School of sculpture and to have lived on for many years till its absorption in the hands of Indians.<sup>100</sup> The Indian custom of ornamenting golden vessels was adopted in the sphere of Greek culture and the Indian Jacinth became a favourite material with lapidaries. Indian precious stones and Indian fables influenced Greek travellers' tales.<sup>101</sup>

The Greek invader found in India an ancient and highly developed society and much as it is to-day, in the matter of living, usages and customs, in size and population, etc.<sup>102</sup> In the wake of Alexander's invasions, Greek settlements were established in the Punjab and the North-Western Frontier and the existence of the Bactrian kingdom and its off-shoots between 246 B.C. and 50 A.D. helped their development.<sup>103</sup> The Indo-Bactrians were even said to be the Goanese of antiquity.<sup>104</sup> Saka invasions from the second century B.C. resulted in the establishment of Saka kingdoms in the Punjab, at Muttra and the Kathiawar Peninsula.<sup>105</sup>

Greek authors of 300 B.C. refer to caste and ceremonial purity<sup>106</sup> as relating to the Hindus. Regulations of the Mauryans regarding 'finding lodging for foreigners, to keep them under observation, to escort them out of the country, and in case of sickness or death to provide for the treatment or burial of the stranger, whose property they were obliged to protect and account for' implies constant intercourse with outside states and visits to the capital on business by strangers. The Mauryan Empire levied tolls on trade and the identity stamp was called *Abhijnana Mudra*.<sup>107</sup>

Buddhist and Brahminical writings testify to the existence of trade in the fifth century B.C. with the Persian Gulf, the coasts of Arabia and Africa.<sup>108</sup> Ujjain (capital of Avanti, i.e., Malva) in the seventh century B.C. is one of the seven sacred cities, rivalling Benares, according to the discoveries in Taxila.<sup>109</sup>

This sea trade in the Indian Ocean was carried on largely in native Dravidian craft. It had great influence in the interchange of ideas as well as products. The goods sought after by the foreign merchants on the Indian coast were pearls from the fisheries of the Tamraparni river in the Tinnevely district; beryls, gold<sup>110</sup> and corundum from Mysore and Coimbatore; pepper and the other spices from the Malabar coast. Muziris or Cranganore,

100. G. N. Banerji: *Hellenism in Ancient India*, p. 15; cf. E. B. Havel and Sister Nivedita dispute the theory of this influence.

101. *Arts of the Greeks*, Vol. I. From the *Cabinet Cyclopædia* (1833), p. 20.

102. *Anglo-American Magazine* for 1901, pp. 294—306.

103. *Ox. His. Ind.*, p. 8.

104. *Ib.*, p. 143.

105. *Ib.*, p. 8.

106. *Ib.*, p. 37.

107. *Ib.*, p. 88.

108. *Periplus*, § 54, p. 209.

109. *Ib.*, p. 44.

110. Pliny mentions gold on the Malabar Coast, apparently from the mines in Mysore; cf. *Periplus*, § 63, p. 259.

and Bakarai or Vaikkarai, the haven of Kottayam, in the Travancore State were the principal ports where, as in several other places, there is reason to believe, Roman subjects were living. Korkai on the Tamraparni river was the chief centre for the pearl fisheries. Puhar, also named Kaveripaddanam, then at the mouth of the river Cauvery was for some time a rich and thriving port. It, with the other ancient ports there, is now desolate owing to an elevation in the coast line.<sup>111</sup> "The utter destruction of the once wealthy commercial cities of Korkai and Kayal on the Tinnevely coast, now miles from the sea and buried in sand dunes, ceases to be a mystery," if we remember "that the coast level has risen. In other localities, some not very distant from the places named, the converse has happened, and the sea has advanced, or in other words, the land has sunk."<sup>112</sup> In either case the signs of the existence of early trade have been obliterated.

We may conclude that in all probability the earliest inhabitants of India settled on the ancient high and dry land of the Peninsula, and not in the northern plains.<sup>113</sup> According to Kautilya also the commerce with the south was of greater importance than that with the north, the more precious commodities coming from the Peninsula. He says that while the northern regions supplied only blankets, skins, and horses, gold, diamonds, pearls, other gems, and conch shells came from the south. The Tamraparni river, the Pandya country and Ceylon are named. Textiles came from the Konkan. Commerce by land and sea with foreign countries was regulated by many ordinances, and passports were required by all persons entering or leaving India.<sup>114</sup>

Evidence is also furnished by the Dravidian alphabet, supposed to be from a semitic (Himyaritic, or Phœnician) original, and to date from about 1000 B.C. against the Aryan of Kharosthi which was formulated about B.C. 500 after the conquest.<sup>115</sup>

#### Coins.

Evidence derived from the existence of coins in India next claim our attention. Coins of Azes (50 B.C.) contain the names of sovereigns with proper inflexions and they could not have been copied from any existing die. This suggests a familiarity with the Greek language in the north-western provinces of India and if the suggestion that the first embassy to Rome came from the Punjab be accepted, the Greek language of the credentials can be easily explained. Even the little knowledge we possess regarding the Bactrians, Indo-Greek and Indo-Parthian dynasties is due to inferences from coins.<sup>116</sup> In

111. *Ox. His. Ind.*, pp. 143—44. 112. *Ib.*, Intro. iv. 113. *Ox. His. Ind.*, p. 5.

114. *Arthashastra*, Book II, Chaps. 2, 11, 16, 28, 34; Book VII, chap. 12; *Ox. His. Ind.*, p. 68.

115. R. Sewell: *Hindu Period of South India*, "Imp. Gazetteer" II, p. 322.

116. *Ox. His. Ind.*, Intro. xvii.

Peninsular India, the Roman *aureus* circulated as currency like the British sovereign at the present day. By the time of Vespasian, the Roman coin had so naturalized itself that Indians preferred to use it.<sup>117</sup> Pliny lamented the drain of Roman gold to India.

In *J. R. A. S.*, 1904, R. Sewell has detailed the discoveries of Roman coins in South India. They were largest in the neighbourhood of the beryl mines in the Coimbatore district and the adjacent parts of the Madura district. The articles of trade with which Rome was concerned were also the products of South India. The number of coins, besides hoards, discovered there amounted to 612 gold and 1187 silver coins.<sup>118</sup>

#### MADURA DISTRICT.

1839. A Solidus of Zeno.

1856. Sixty-three coins were discovered at Caliem-pootoor in Iyempully taluk, a place adjacent to the boundary of the Madura and Coimbatore districts.

Dr. Bidie discovered them. They range from B.C. 8 when Drusus was Senior Consul to Commodus A.D. 180-193.

#### COIMBATORE DISTRICT.

*Polachy :* 1800. Coins of Augustus and Tiberius were discovered.

1810. Do. They were a potful.

1817. A silver coin of Augustus, and punch-marked Buddhist coins in Pandukulis<sup>119</sup>, were found.

*Karoor :* 1806. Five gold coins of Augustus, Tiberius, Antonia and Claudius were found.

1878. Rev. H. Little discovered a hoard of five hundred coins.

*Vellaloor :* Four miles east of Coimbatore. 1842. 522 Roman *denarii* of Augustus and Tiberius, including some of Caligula and Claudius were found.

*Ootacamund :* 1827. A gold Roman coin was discovered by John Sullivan.

117. Mommsen : *Provinces of the Roman Empire*, ii, 300.

118. See p. 525 ; cf. Eliot : *Coins of India*; E. Thurstan : *Catalogue of Coins* (No. 2).

119. Cf. also C. J. Brown : *Coins of India*, p. 17.

*Kannanur :* 1850-1 A.D. Five coolie loads of Roman *aurei* were unearthed, by Capt. Drury, in a well-preserved state, belonging from Augustus 29 B.C. to Antoninus Pius A.D. 161.

*Cuddapah District :* 1838. An aureus of Trajan found.

*Nellore :* 12-7-1787. Alexander Davidson, Governor of Madras came by Roman coins and metals of Adrian, Faustina and some Trajans.

*Sholapur :* Fifteen miles from Darpal. 1840. A hoard of Roman coins—of Severus, Antoninus, Commodus, Ducius Vernes, Geta was found.

Col. Tod in 1824 stated that Greek coins were once struck in India, marking a first intermingling of eastern and western culture in India. As already remarked, currency of South India chiefly consisted of Roman gold along with the spherules.<sup>120</sup> Regarding the issue of lead coins, one of which is discovered and belongs to Vasishtī Putra Sri Pulamāvi (A.D. 130 about), which has on its obverse a two-masted ship, Mr. C. J. Brown suggests it was evidently intended for circulation on the Coromandel coast.<sup>121</sup> It is in evidence that a great Saka conqueror, Nahapāna, who founded a kingdom on the Western Ghats in the first century A.D. also reproduced the Greek hemi-drachm.<sup>122</sup> About A.D. 180, Sri Yajna Satakarni struck not only the lead and billon coins as usual but restruck and imitated the silver hemi-drachms of the Satrap Nahapāna.<sup>123</sup> The coins also suggest the establishment of a kingdom in Malwa about A.D. 1 by Chastitana, another Saka chieftain.

The earliest coins assigned to Kurumburs, a pastoral tribe of the North Arcot district, are two-masted ship copper pieces of the third century A.D.<sup>124</sup> The Andhra coins showed a two-masted ship with details like those of the Gujarathi ship at Borebodur and the Persian ship at Ajanta.

From these R. Sewell is led to the conclusion that in all probability Roman merchants continued to reside in South India, either permanently or for sufficiently long periods. The discovery of Roman copper coins in large quantities suggests their daily use.<sup>125</sup> Roman coins may have been exchanged against the spices destined for the Roman kitchens.<sup>126</sup>

The Asiatic and Egyptian Greeks, by virtue of their geographical situation and for the purposes of trade, must have found it necessary to learn the languages of the countries where they lived and to get acquainted with their

120. C. J. Brown : *Coins*, p. 58.

121. *Ib.*, p. 21.

122. *Ib.*, p. 30.

123. *Ib.*, p. 21.

124. *Cf. Periplus*, p. 244.

125. *J.R.A.S.* (1904), p. 601.

126. McCrindle : *Ancient India*, p. 121.

literature. It does not appear as if the opportunity was used to the full. Nevertheless, though knowledge was confined to the higher classes among the population of Asia and the Alexandrines, literary productions must have been addressed to a public widely dispersed and very dissimilar in tastes and habits.<sup>127</sup> It is quite certain, also, that Indians must have become familiar with the Greek alphabet by Panini's time (fourth century B.C.)<sup>128</sup>

The best elephants came to the West from India.<sup>129</sup> Ivory, apes, peacocks were indigenous to India and the words used in Hebrew to designate them are not Hebrew but Dravidian. An Indian peacock was sent to the king of Egypt as a present and he dedicated it to Jupiter. Export of peacocks to Babylon is referred to in the *Baveru Jataka*, a work of about 400 B.C. Rice (*Oryza*) is similarly derived from *arisi* in the Dravidian language.<sup>130</sup> Cloves and nutmegs were procurable in the early days only from the Malayan Archipelago. They went to Alexandria about A.D. 180 and the Indo-Malayan trade must have commenced subsequent to the first century A.D. as the *Periplus* does not refer to it. Sandalwood is a native of South India; likewise, ebony, blackwood and teak referred to for the first time in the *Periplus*.

#### Greek Colonies in India.

The foregoing makes it sufficiently clear that Greek settlements must have existed in South India on a fairly large scale. The following supplementary facts may be given.

In the proximity of Maruvarpakkam, on the beach, were the settlements of Yavana merchants where attractive articles were always exposed for sale. Here also were the quarters of foreign merchants who came from beyond the seas and who spoke various tongues. Kanakasabhai bases this information on the Tamil poems.<sup>131</sup> V. A. Smith in his *Early History of India* agrees and suggests the reference to be to Kaveripattanam. It is *Khabaris*, north of Tranquebar.<sup>132</sup>

If the high quality of Mauryan sculpture was due to a happy blending of Indian, Iranian and Hellenic factors,<sup>133</sup> Greeks must have resided in India forming settlements of their own. The Indo-Greek princes and people so settling in India tended to become Hinduized. A record discovered at Taxila refers to a district officer under an Indo-Greek king as a 'meridiarch', suggesting the use of Greek for official purposes. Our knowledge of English, Persian, Marathi and French confirms the belief that Greek must have been spoken at the time at the courts of the Indo-Greek kings though it may not have spread among the Indian people.<sup>134</sup>

127. *Finlay* : pp. 10-11. 128. G. N. Banerji : *India*, p. 20. 129. *Ox. His. Ind.*, p. 68.

130. *Periplus*, § 41, Note :—The Egyptian language contains numerous words of Sanscrit origin so much so Francis Buchanan even suggests that the Indians originally went to India from Egypt, cf. *Asiatic Researches*, Vol. III, 1799, p. 7.

131. See *Tamils 1800 Years Ago*, by Kanakasabhai.

133. *Ox. His. Ind.*, p. 140.

132. *Ptolemy*, p. 65.

134. *Ib.*, p. 142.



Greek factories were probably established in the places which were most frequented by Alexandrian ships. The merchants must have consigned their goods to those places and these factories must have managed all their business with the authorities and the people.

Muziris must have been one such. There is reason to believe that Roman subjects lived at this place. Merchants used to sail from Arabian ports to Muziris in July and August and reach it in forty days, completing the return journey in December or January following. The place is identified now with Cranganore, its identification with Mangalore being a mistake. To the Christians it was the landing place of St. Thomas, the Apostle. It is the nearest port to Madura on the west coast.<sup>134a</sup> According to the *Periplus*,<sup>135</sup> it was in the kingdom of Cerebothra. It was full of ships sent there with cargoes from Arabia and the Greeks. It was located on a river. There was a temple for Augustus built there.<sup>136</sup>

The alleged Greek colony of Byzantium on the west coast of India is denied by McCrindle, who suggests Ptolemy's reference to it may be to Vaijayanti or Vijayadurga in the Ratnagiri district.<sup>137</sup>

Karur is said to have been the capital of Limyrike, where Kerobothras, i.e., the Chera Keralaputra, resided.<sup>138</sup> In the Asokan Rock Edict, the Kerala or Chera kingdom was mentioned. It included the Malabar district with the modern Cochin and Travancore States, sometimes extending eastwards. Asoka also mentioned a fourth minor kingdom, the Satiya kingdom. "The kingdom of Satiyaputra must have adjoined Keralaputra; and since the Chandragiri river has always been regarded as the northern boundary of that province, the Satiyaputra kingdom should probably be identified with that portion of the Konkans or low lands between the Western Ghats and the sea, where the Tulu language is spoken, and of which Mangalore is the centre. The name of Kerala is still well remembered and there is no doubt that the kingdom so called was equivalent to the southern Konkans or Malabar coast. The ancient capital was Vanji,<sup>138a</sup> also named Karuvur, the Karoura of Ptolemy, situated close to Cranganore, which represents Muziris, the port for the pepper trade, mentioned by Pliny and the author of the *Periplus* at the end of the first century A.D.<sup>139</sup>

Nitra is identified with Mangalore.<sup>140</sup> Pliny also refers to it.

134(a). *J. R. A. S.* (1904), p. 601.

135. p. 51 and §54, p. 44.

136. Cf. V. A. Smith and Peutingerian Tables.

137. *Ptolemy*, p. 47.

138. *Ib.*, p. 49.

138(a). Is it the same Vanji that dates from the first century A.D. and comprises all the Jews in Travancore? Which is Pukar?

139. V. A. Smith: *Early His.*, pp. 340-1.

140. *Ptolemy*, p. 47.

Tyndis referred to in the *Periplus* is identified with Ponnani, on the river of the same name. The river drains a rich section of the western mountains—the Annamalai Hills and it is a natural terminus for pepper of the hills and the beryls of the Coimbatore district.<sup>141</sup>

Bakare is identified with Kottayam in Travancore. Bakare (Ptolemy, p. 52), Becare (Pliny), Bacare (*Periplus*, 55). The *Periplus* says the kings of Bacare and Nelcynda lived in the interior.

Of the principal ports mentioned in the *Periplus* (§§ 52-3), in the Konkans, North Kanara and North Malabar, it is sufficient to mention Nelcynda. It was said to belong to the Pandyan kingdom. Pepper trade is prominently mentioned. Its situation is near Kottayam.

The Adeisathori referred to is that section of the Western Ghats extending immediately northward from the Coimbatore gap.<sup>142</sup>

Ujjain (Ozeni) was the capital of Malwa. It is inland from its port Barygaza and to its east. It is very prominently mentioned in Buddhist records. In the time of Hiuen Tsiang, Buddhism was on the decline here and at Barygaza, while it was flourishing in Guzerat and in the Konkan.<sup>143</sup> It formed the principal stage on the route from the Deccan to Sravasti, Kosala's capital. Asoka according to the *Mahawanso* was ruling here as Viceroy.

Barygaza or Broach is a trading town at the mouth of the Narmada river, on the west coast of India. The first Roman embassy with the Pandion is stated to have started from this port and proceeded by way of the Red Sea. It was also called Bargosa from Sanscrit Varikatcha. When the *Periplus* was written, it was a place of considerable trade and the commerce of the West first came here. It naturally welcomed opportunities of friendly intercourse with Rome.<sup>144</sup> Ptolemy describes it as the greatest seat of commerce in western India and the capital of a powerful and flourishing state.<sup>145</sup> It was also an important port of the Empire of Chandragupta Maurya.

These references may be said to establish, conclusively, considerable maritime activity and trade between South India and the West and suggest incidentally the existence of Greek settlements on the west coast of India.

It was natural for the Arabs to preserve a secret of their knowledge of the channels of trade with India. Certain accidents helped Rome in her quest of a cheaper method of obtaining materials from India and that directly without the Arab as an intermediary. A Roman subject, perhaps in the Abyssinian service, was driven to sea in an open boat to India with a favourable wind and much information. Subsequently, Hippalus, a venturesome

141. Note: —Dr. Burnell suggests Kadalundi near Beypore.

142. *Periplus*, § 71, p. 164.

143. *Life of Hiuen-Tsiang*, by Beal. iii. 154, 165, 1471.

144. *Apollonius of Tyana*, p. 81.

145. *Ptolemy*, p. 133.

igator (about A.D. 47) observed the periodic change of the Indian monsoon and made a successful voyage to India and returned richly laden with goods. Of the articles of merchandise he was unable to secure however, was pepper.<sup>146</sup> Indians in their turn directed their attention to the West. They were besides the carriers of the trade to the Western countries from the Farther East also. "The Chera backwaters became a meeting place for the trade from the China Sea to the Gulf of Suez".<sup>147</sup>

The civilization of Indo-China came exclusively from the Deccan and was of Indian origin. The Indo-Chinese inscriptions are dated in the Saka era and the alphabets closely resemble those of the Deccan.<sup>148</sup> There is evidence of the existence of this influence in the second century of the Christian era. Ptolemy gives the names of coast towns in Annam which are not merely Indian but Sanscrit. An inscription of a Champa king Sri-Mara Mura-Raja is in Sanscrit, in an alphabet identical with that of the Rudraman inscription at Girnar. "The Indo-Chinese civilization did not come from every place in India, but from a port of the Deccan whence the travellers embarked for Indo-China." Gudur near Masulipatam is identified with it. In Ptolemy's time, the whole coast line of Further India was inhabited by the Sindoi (Hindus) and the Brahmanic religion may have gone by the sea.<sup>149</sup> Brahmans from India civilized Siam.<sup>150</sup> The Cambodian empire was Hinduised by a Brahman Houentieu (Kaundinya) in the first century A.D. according to the Chinese records.<sup>151</sup>

Besides, it was in the second century A.D. that the Chinese lost the command of the highways of Central Asia,<sup>152</sup> and transmarine commerce which was in existence as early as 120 B.C. between India and China got a fresh impetus. In the first century B.C., the Chinese knew India as T'ien-chu or T'ienchu, about the time of the introduction of Buddhism into that country,<sup>153</sup> i.e., about 67 A.D.<sup>154</sup>

Malaya and Java are also mentioned by Ptolemy. According to Dr. Fergusson, the Buddhist immigrants to Java came from Gujrat and the mouth of the river Krishna. The Indians of the Coromandel coast first established commercial relations with Indonesia.<sup>155</sup>

Ancient Hindu mariners had light-houses to warn ships, as for example at the port on the mouth of the river Cauvery where there was a big tower on a palmyra trunk carrying on the top of it a huge oil-lamp.<sup>156</sup> It shows

146. *Ox. His. Ind.*, pp. 5-6.

147. *Periplus*, p. 273.

148. *Dubreuil*, p. 85.

149. G. N. Banerji : *India*, p. 50.

150. *Kalidas Nag*, p. 39.

151. P. C. Bagchi : *India and China*, p. 15.

152. G. N. Banerji, *India*, p. 36.

153. *Ib.*, p. 43.

154. *Kalidas Nag*, p. 23.

155. *Cf. Kalidas Nag*, p. 23.

156. G. N. Banerji : *India*, p. 26.

the importance of the South Indian coast as a centre of trade. Fa Hien mentions sailing in 413 A.D. for Canton in a merchant vessel with 200 Hindu traders on board. About 222 A.D. at the time of the *Wu*, a ship with seven sails could sail from Kango-tia-chou, a place on the west coast of India according to Dr. Bretschneider, and could enter Tat'sin (Syria) within a month, if the winds were favourable.<sup>157</sup>

We have already referred to the existence of evidence in Egypt, etc., indicating close contact between the West and India and to these may be added the following.

In the Nile valley, and at Babylon, native authors such as Manetho and Berossus wrote in Greek. The Roman Empire offered the Greek intellect a new home with fresh constitutional and legal principles and the West became a province of Hellenic manners and customs.<sup>158</sup>

In Auxum, the capital of Abyssinia, the great monolith, belonging to the first century A.D. is of Indian inspiration. While the idea is Egyptian, the details are said to be Indian.<sup>159</sup>

In the *Anthropological Magazine*, *Man*, for 1906, part VIII, the famous Egyptologist Flinders Petrie, refers to his discovery of portraits of Indian men and women at Memphis, as the first remains of the Indians known in the Mediterranean. The connecting links testifying to embassies from Egypt and Syria to India and to the missions of Asoka for the propagation of Buddhism as far west as Greece and Cyrene which were so far lacking appear to have started with the discovery of the Indian colony at Memphis. Further researches may shed great light on this connection.

A reference to Alexandria may be made in concluding this long account. It was here the Greek play is said to have been composed. Alexandria was essentially a Greek city, made up of about every nation under the sun. It carried on a large, profitable and increasing trade with the East. Its influence on the Roman Empire and European civilization was vast. Its schools of philosophy modified Christianity in the East. Its wealth and population excited the jealousy of Augustus. Hadrian was struck with the activity and the industry of the Alexandrine population.<sup>160</sup>

Alexandria was dealing with Indian wares. Dio Chrysostom, contemporary with Plutarch and a friend of Apollonius of Tyana, who lived in Trajan's time, mentions Indians among the cosmopolitan crowds to be found in the bazaars of Alexandria, having come by way of trade.<sup>161</sup> There is a suggestion that the Indians referred to may be the Ethiopian Indians, whose

157. G. N. Banerji : *India*, p. 43.

158. *Ib.*, p. 22.

159. Fergusson : *History of Architecture*, Vol. I, pp. 142—3.

160. *Finlay*, p. 85.

161. *Apollonius of Tyana*, pp. 62—3.

city was Adule. But, it is said, Hindus also resorted to this centre of the world's trade.<sup>162</sup>

There was a statue of the River God Indus in the town, probably the gift of a Greek. Constantinople also seems to have reported the presence of Brahmans.<sup>163</sup>

During the reigns of Severus, his son Caracalla, and the pseudo-Antonines, Alexandria and Palmyra were most prosperous and Roman intercourse with India was at its height. Then Roman literature gave more of its attention to Indian matters, and did not, as formerly, confine itself to quotations from the historians of Alexander or the narratives of the Seleucidian ambassadors but drew its information from other and independent sources. In the life of Isidorus by Damascius as presented by Photius is to be found an account of some Brahmans who visited Alexandria and lodged in the house of Severus, *i.e.*, before he became consul (A.D. 470 ?) and took up his residence at Rome.

Thus, under the Romans, Alexandria was the centre of the world's trade; its port was the mistress of the trade which passed between India and Europe. The Syrian vessels touched there *en route* to Italy. The harbour was always busy and full and in the streets might be seen men of all languages and dresses.

Recapitulating what has been elaborately set out before, it will be found that a few solid facts emerge from the preceding considerations.

1. The existence of trade between South-West India and Egypt.
2. Colonies and settlements for purposes of trade of the Greeks and Romans in South-West India and of Indians in Egypt.
3. Some familiarity with the Greek tongue by trading Indians and of Indian languages of the South by the people of Alexandria interested in Eastern trade.
4. Intimate knowledge of Egypt and the Nile, etc., acquired by the Indians, whether it implies that the Indians came to India from thence or Indians colonized there later.
5. Reference to the Brahmans and Hindus in ancient Greek literature and the discovery of Roman coins in India excluding the possibility of identifying Indians with other than Hindus.

These facts are of paramount importance in coming to a decision regarding the language of the unknown passages in the Greek play under reference. It is unfortunate that no attempt has been made to explore the possibilities of these passages belonging to any language in Egypt and the surrounding

162. *Ib.*, p. 62.

163. Dr. G. Oppert in the *Madras Journal of Literature and Science*, 1879, Vol. XXIV, pp. 209—220.

countries. Whether the passages do not belong to the Etruscan language has also not been considered. Then, the island of Socotra is in the Indian Ocean and, not improbably, the people there may have been at that time generally known as Indians like the Ethiopians and others. Till the Mussalmans overran that country, it was only Greek that was spoken there and it was an important centre of the Eastern trade at the period of which we have been speaking. It is not unlikely that a large number of Socotrians also lived in Alexandria. It is impossible for us, here, to say whether the unknown passages do not belong to the language of Socotra or again whether these passages have not something to do with the listed words and passages of the language spoken by the people with whom Eudoxus of Cyzicus came into contact during his voyages. If we could exclude the possibility of the passages being thus identified with any other non-Indian language, then the question would again arise whether they may not have something to do with the Brahūi dialect of Gedrosia, which has marked affinities with the Dravidian languages of the South. If 'Pandion' be a mistake for Porus and the embassy went from the north-west India, then even the Greek language of the embassy's credentials could be explained. This avenue of research also deserves careful consideration. A north-western Indian relationship with the passages would also be consistent with the knowledge of the Hindus regarding East Africa and the large number of Sanscrit words to be found in the vocabulary of the Egyptian language. It may also be usefully considered whether the unknown passages may not belong to either later Pali or old Prakrit. The publishers of the *Oxyrhyncus Papyri* on p. 55, while commenting on l. 83 containing the words '*Panoumbretikateman*', etc., say: "Assuming that it is worth while to bring the barbarian language into relation with any known speech the key is possibly to be found in late Pali or old Prakrit. We owe to Dr. G. A. Grierson the suggestion that in the present passage, for instance, *Panoumbreti* may represent *Pano amrita* (drink and nectar) which suits the context remarkably well. Similarly, he would convert *alemmaka* in l. 205 with the Pali *alam*, (enough or stop), *ka* being a substantive suffix which an ignorant Greek might use incorrectly. But we must leave the consideration of this question to Sanscrit scholars." It may nevertheless be said that the vast intercourse between south-west India and Alexandria may be considered favourably to locate the scene of the play in a western port of Southern India. In this case, we cannot be unmindful of the second embassy to Rome in the first half century A.D. Plocamus learnt the language of the country Ceylon: it must have been Tamil. If, however, Pliny's *Taprobane* refers to Sumatra, a fresh difficulty arises.

Of course, if we could agree with Dr. R. Shama Sastri's identification of Malpinaik, an important link for his case will have been forged. This apart, Dr. Shama Sastri combines ransom and drink. But as the distinguished savant

of the Mysore University (Sir Brajendranath Seal) has said, the two cannot be, and as the drinking scene undoubtedly is there, casting dice for ransom may be abandoned. The scene is also reconstructed in the Report by him with this modification. Following the syllabification (which Dr. Shama Sastri has made) of the transliteration of the unknown Greek passages one seems inclined to agree with the learned doctor that the passages may be of the Kannada language. But it is not altogether easy so to agree without a little straining of Kannada itself.

Dr. Seal does not appear<sup>164</sup> wholeheartedly to agree with this identification, judging from the words 'if this is Kannada speech, etc.' I have had the advantage of a long and useful discussion with him on this subject and he seems to consider that the language may be Dravidian while it would be rather difficult to contend that it is Kannada only, excluding the possibility of Tamil being the unknown language. I may observe that Dr. Shama Sastri is a Sanscrit scholar and that Dr. Seal is also a scholar in Pali and Prakrit in addition. In the second century A.D. Malayalam had not yet definitely formed, but Tamil was a well developed language. The difference between Kannada and Tamil in the derivation of words, etc., may not have been so much as now. The annexed table<sup>165</sup> indicates how, if the language can be said to be Kannada, it may be considered to be Tamil as well, though the rendering as we have it creates a predisposition in favour of Kannada.

If the farce was staged at Alexandria,<sup>166</sup> why should it contain non-Greek, particularly Kannada passages? Who could appreciate it there? Was the Kannada language likely to be understood by any important section of the people in that place? I can understand Tamil scenes in a Burmese play or a French scene in an English drama like *Henry V.*<sup>167</sup> Dr. Hultzsch was unable in 1904 to identify more than a few words and Dr. Grierson suggested Pali or Prakrit to have been the unknown language. Mr. R. A. Narasimhachar has not been able to give us the benefit of his experience. Rao Bahadur H. Krishna Sastri whose recent demise we all so much deplore was kind enough to spare to me long talks on this play; I trust I am not taking any advantage in stating that he felt it difficult to agree with the identifications of the learned doctor. Rao Bahadur M. Shama Rao, our President,

164. See p. 19, *Mys. Arch. Rep.*, 1926.

165. See Appendix "C".

166. The Publishers suggest it may have been staged at Oxyrhynchus.

167. Cf. Shakespeare: *Henry V.*, Act III, Sc. iv. Rouen—a room in the palace.

A dialogue in French between Katharine, the daughter of Charles and Isabel of France and a lady attending on the princess, called Alice, is given, about 60 lines in all. In the previous scene, the English Forces are below the gates of Harfleur in France and the Governor and citizens on the wall. King Henry enters with his train and the gates are opened to him. Note—French could be easily understood and the scene appreciated by Shakespeare's English audiences at the time.

has given me many and valuable hints and I am extremely grateful to him. I have had the benefit of interesting discussions with Messrs. B. M. Srikantia, D. V. Gundappa, B. Venkatanaranappa and others and I regret to say that my sanguine expectations were not realized.

'Chiefs of the Indians', in the text, may not refer to the tribal chieftains at all. None are referred to in the *dramatis personæ* or the play. Why does the Hindu king address his party as 'Indian Chiefs' or address them in Greek while starting them to dance, himself leading, while on every other occasion, he speaks in the unknown language?

Then, the form of the identification is again important. There is no trace of the existence of any Kannada literature prior to the seventh century A.D. The words as identified read like modern Kannada. The primitive Kannada of the Kadamba period is said to differ as much from the Kannada of the thirteenth century as the latter from the modern. Beowulf and a mid-English verse may each be compared with the poems of Tennyson or Kipling to give us some idea of the difference. Nor is there any indication of the spoken Kannada of the period.<sup>168</sup>

In a paper contributed to the Third Oriental Conference held in Madras on the 'Earliest Monuments of the Pandya Country and Their Inscriptions', Mr. K. V. Subrahmanya Iyer refers to the Brahmi cave inscriptions of South India and suggests the language of the inscriptions to be Tamil, from the orthographical and other peculiarities. They may be the same for the sister languages, Kannada and Telugu. In any case, they are peculiar to the Dravidian languages. It may possibly be that some Tamil scholar will give that attention to this subject as Dr. Shama Sastri has done for Kannada and guide the lay reader towards a correct solution. Dr. Shama Sastri is doubtless entitled to say that his identification is strengthened by Malpi and the Tamil mixed language of the Udupi people.

The conclusion becomes irresistible that judgment should be suspended, pending further elucidation of several facts referred to in this paper. The lovers of the Karnataka country and its language cannot be sufficiently grateful to Dr. R. Shama Sastri, for his laborious research and most praiseworthy endeavour to identify these unknown passages and I hope, with the march of time, his identification will be enabled, by further research, to become an accepted fact.<sup>169</sup>

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168. Some specimens of early Kannada from the inscriptions are given in Appendix "B".

169. The text of the passages is given in Appendix "A".



## APPENDIX A.

Text of the Papyrus as given in the Text. (Oxyrhyncus Papyri III, No. 413.)

(Col. iv of the Greek Text, ll. 188—230.)

- F. Lady Charition, rejoice with me at my escape !  
 A. (Charition). Great are the gods.  
 B. (buffoon). What gods, fool? \* \* \*  
 A. Cease, fellow !  
 F. Wait for me here and I will go and bring the ship to anchor.  
 A. Go ; for see, here come their women from the chase.  
 B. Oh ! What huge bows they have !  
*A woman.* Kraunou. *Another.* Lalle.  
*Another.* Laitaliana Lalle . . .  
*Another.* Kouakos anab . iosara.  
 B. Hail !  
*All.* Laspathia.  
 B. Ah ! Lady, help !  
 A. Alemaka. *All.* Alemaka.  
 B. By Athena, there is no . . . from us.  
 A. Wretch, they took you for an enemy and nearly shot you.  
 B. I am always in misfortune. Will you then . . . to the river Psolichus ?  
 A. As you like. (*Drums.*) B. \* \* \*  
*All.* Minei.  
 F. Lady Charition, I see the wind is rising, so that we may cross the Indian ocean and escape. So enter and fetch your property, and if you can, carry off one of the offerings to the goddess.  
 A. Prudence, fellow ! Those in need of salvation must not accompany their petitions to the gods with sacrilege. For how will the gods listen to men who try to win mercy with wickedness ?  
 B. Don't you touch, I will fetch it.  
 F. Well, fetch your own things then.  
 A. I do not need them either, but only to see my father's face.  
 F. Enter then ; and do you serve them . . . and give them their wine strong, for here they come.

(Col. ii of the Greek Text, ll. 38—106.)

- B. I think that they are the daughters of swine ; these too I will get rid of. (*Drums, \* \* \*.*)  
*All.* Ai arminthi. (*Drums.*)  
 B. They also have run away to the Psolichus.  
 C. Yes ; but let us get ready, if we are to escape.  
 B. Lady Charition, get ready if you can to take under your arm one of the offerings to the goddess.  
 A. Hush ! Those in need of salvation must not accompany their petitions to the gods with sacrilege. For how will they listen to the prayers of those who are about to gain mercy by wickedness ? The property of the goddess must remain sacred.  
 B. Don't you touch ; I will carry it.  
 A. Don't be silly, but if they come, serve them the wine neat.  
 B. But if they will not drink it so ?  
 C. Fool, in these regions wine is not for sale. Consequently, if they get hold of this kind of thing, they will drink it neat against their will (?).  
 B. I'll serve them lees and all.  
 C. Here they come, having bathed, with . . . (*Drums.*) . .

- King.* Brathis. *All.* Brathis. *B.* What do they say ?  
*C.* Let us draw lots for the shares, he says. *B.* Yes, let us.  
*King.* Stoukepairomellokoroke. *B.* Back, accursed wretch !  
*King.* Brathie. (*Drums*). Bere konzei damun petrekio | paktei kortames bere ialero depomenzi | petrekio damut kinze paxeï zebe lolo | bia bradis kottos. *All.* Kottos.  
*B.* May you be kicked by 'kottos'. *King.* Zopit. (*Drums*).  
*B.* What do they say ? *C.* Give them a drink, quick.  
*B.* Are you afraid to speak then ? Hail, thou whose days prosper ! (*Drums*).  
*King.* Zeisoukormosed. (*Drums*). *B.* Ah ! Not, if I know it !  
*C.* It is watery ; put in some wine. (*Much drumming*).  
*G.* Skalmakatabapteiragoumi.  
*H.* Tougoummi nekelekethro. *G.* Eitoubelletrachoupteragoumi.  
*B.* Ah ! None of your disgusting ways ! Stop ! (*Drums*). Ah ! What are you doing ?  
*H.* Trachoutermans.  
*G.* Boullitikaloumbaï platagoulda bi [  
*B.* Apuleukasar. (*Drums*). *King.* Chorbonorbothorba.....toumionaxizdespit platagoulda bi.....sesorachis. (*Drums*). *King*.....orado satur [  
*King.* Ouamesaresumpsaradara ei ia da [  
*B.* Martha marithouma edmaïmaï maïtho.....thamouna martha marithouma. (*Drums*)  
.....tun [  
*King.* Malpiniakouroukoukoubi karako....ra.  
*All.* Aba. *King.* Zabede zabiligidoumba. *All.* Aba oun [  
*King.* Panoumbretikatemanouambretououeni.  
*All.* Panoumbretikatemanouambretououeni  
Parakoumbretikatemanouambretououeni  
Olusadizapardapiskoupiskateman areiman [  
ridaou oupatei . a . (*Five drummings*).  
*King.* A boundless barbaric dance I lead, O goddess moon,  
With wild measure and barbaric step ;  
Ye Indian chiefs, bring the drum (?) of mystic sound,  
The frenzied Seric step . . . (*much drumming, beating*).  
*All.* Orkis [.]. *B.* What do they say again ?  
*C.* He says, dance. *B.* Just like living men. (*Drums \* \* \**)  
*C.* Throw him down and bind him with the sacred girdles (*much drumming. Finale*).  
*B.* They are heavy now with drink.  
*C.* Good ; Charity, come out here.  
*A.* Come, brother, quickly ; is all ready ?  
*C.* Yes, all : the boat is at anchor closely ; why do you linger ? Helmsman, I bid you bring the ship alongside here at once.  
*D.* (*Captain*). Wait till I give him the word.  
*B.* Are you talking again, you burgler ? Let us leave him outside to kiss the ship's bottom.  
*C.* Are you all aboard ? *All.* Aboard ! *A.* O unhappy me ! A great trembling seizes my wretched body. Be propitious, lady goddess ! Save thy hand-maiden !

## APPENDIX B.

Mysore, Vol. III, P. 1. Ep. Car., p. 381. A.D. 189, Nanjangud 199.

ಗಟ್ಟವಾಡಿ ಗ್ರಾಮ.

ಸ್ವಸ್ತಿ ಶ್ರೀ ಸಕ ವರಿಷ  
ನೂಜಿಪನ್ನೊನ್ನನೆಯ ೧೧೧  
ಅಂಗ್ಕಿರ ಸಂವತ್ಸರ  
ದ ಎಜಿ ಹವೆಮ್ಮಡಿ  
ಯಂ ರಾಜ್ಯದನ್ನೂ ಗೊ  
ಟ್ಟವಡಿಯ ಗೋವುಣ್ಣ  
ಗಳಂ ಸಲಾಂಭೆಯರುಂ  
ಅನೆಯರುಳುಡಿ ಗೋವು  
ಣ್ಣಂ ಗೆಯ್ದುವದಕ್ಕೆ ಇವರ ಕೊ  
ಡಗ್ಗೆ ಸಲಬ್ಬೆಯರ ಕೊಡಗ್ಗೆ  
ಎಜಿಹಂಬಾಳಂ ಅನೆಯರ ಕೊ  
ಡಗ್ಗೆಂ ಕೊಡಕೆ ಎಡನಟ್ಟಕ್ಕಂ ಕೊ  
ಸಿದಾಕೆಜಿ ತಗಡುರ ಕುರು  
ಳ ಕೊಗೂಣ್ಣೆ ಎಡತಲೆಯ  
ಕೊತದಪ್ಪಳಿ ಗುನಂ

ಕೆಂನೈಲೈಯ ಬದ್ರು  
ಕೈ ಐಯನೂನಿಟ್ಟರೆ  
ಯ ಬೋರೆ ಅತ್ತೆ ಗಣ್ಣುನುಂ  
ಲೈ ವರುಸಕ್ಕಿ ಉರವ  
ಜ್ಜಿ ದಿಂಬರುಸಕ್ಕಿ ತ  
ಣಾಪತ್ತಿ ಬೆಯಳ ಜೀಯ  
ನುಂ ಉರಪುರವನು.  
ಸಕ್ಕಿ ಕಮುಜಸತಿ  
ಗಂ ಬಡಗಿ ಮರಾಚರಿ ಜ  
ಲನಾಗಂ ಕೆರೆಗಾಬಿಟಿಗನು  
ಮಿಸಗರ ಬೀಮನುಂ ಹೊಲೆ  
ಲಿಪವಂ ಇವರ ಸಕ್ಕಿ  
ಯಂಗ . ಭರಾ . ತಪ್ಪೆ  
.. ದೇವರ ಭಿದಿನಿಯ ..  
.. ಇದ್ದು ಕೆಡ ..  
rest damaged

Ep. Car., Mysore, Vol. III, P. 1, at pp. 353-54, ll. 12 ff.

Nanjangud, 122. Harivarma A.D. 266.

ಹಳಗನ್ನಡಕ್ಕರ. 3 ಹಲಿಗೆ ಅನೆಯವು.

... ಕೊಚ್ಚಟ್ಟ ಕೊತ್ತಗಾವುಣ್ಣಂ ತತ್ತುತ್ತ ಕೋರಾತ್ಯಗಾವುಣ್ಣಂ ಮುಪ್ಪಸ್ಸವಾಹಕ ಮುಜಿಪೊಕ್ಕೆ ಕಾವಂತೆ  
ಬಣ್ಣರ ಭಾವ ಜೆಲಕುಜಿವ ಹೆಜ್ಜಾಜಿ ಸಮರವಲ್ಲೂ ರಾರಿ ಮೂರನಾಗಿ ಗುಡುರೆಯ ಪಾಯಿಸಿ ತಾನ್ದಿ (ದಂಡು) ಯನಿಜಿದು  
ರಾಣಿವಾಸ ಭಣ್ಣಾರಮಂ ಪೆಜಿದು ತೋರಪಳಯಿಗೆ ಭಾಗ್ತಿ ತೊಜಿ ಬಡಗೇ ನಾಡು ವಿಷಯ ಅಪ್ಪೊಗಾಲ್ವಾ ಮ  
ಗ್ರಾಮ ಸರ್ವಬಾಡು ಪರಿಹಾರಮಾಪ್ಪಿ ಗೊಟ್ಟಂ ತಸ್ಸ ಸೀಮಾನ್ತರೇ ಪೂರ್ವ ನೋಡಿ ಕೊಲತೂರ ದ್ವಿಸನ್ನಿ ಕೊಲದ  
ಗುಣ್ಣಿಯೇ ತಂಕನೋಡಿ ಕಿಟಿರತಿಂಣಿ ಪೆಣಿ ಗಗಾಲನಿ ಎರೆಕಪ್ಪೆ ಸಾಸ್ತಾರಿ ಭೂಮಿನ್ದ ಪೇರೊಟ್ಟಿಯ ತುಟ್ಟಿಲೆ ಎರೆ  
ಪಡಿಯ ಗೊನತು ಭೂಮಿಲ್ಲುಣಿಸೆಯ ಬದ್ವಾಗಲ ಹುಸಗೂರ ದ್ವಿಸನ್ನಿ ನಡಿಯ ವಡುವ ನೋಡಿ ಮಣಲದಿಂಣೆ ಕಾರಳ್ಳುಣಿ  
ಸಯ್ಯ ಬದ್ವಾಗಲ ಕೊಳಪನಲ್ಲೂರ ದ್ವಿಸನ್ನಿ ನಾಟವತ್ತ ಮುನ್ದಾಣಿ ಎರೆಪಡಿಯ ಗೊನವಿಯೊಬ್ಬನಟ್ಟಿ ಕಲ್ಲಿ  
ಸಾಸ್ತಾರಿಯ ಬರತಿಯ ಕೆಳಗೆ ಕೊಣಿವಿಡಿಮ ಪೇರೊಟ್ಟಿ ಬಡಗ ನೋಡಿದಟ್ಟಿ ಪುಣಿಸಯ್ಯ ಕೆಂಬರೆ ವತ್ತು ಮುನ್ದಾಣಿ  
ನರನೊಳ್ಳಿಯಂ ಕೆಂಕಿಜಿಯ ಪೆರಿಯ ಪುಂಗಿಯ ಪೇರೊಟ್ಟಿಯ ಮುರಿದು ಕಡಿವಗುಣ್ಣಿಯ ಬದ್ವಾಗಲ ದ್ವಿಸನ್ನಿಯ  
ಪುಣಜವರಳನ್ನಿಯ ನಾಡ ನೋಡಿಕೆ ಕೆಂಕೆರೆಯ ಕೊಳದುಬ್ಬಲೆ ಕೆದಲ್ಲಡಿಯ ಮೂಡಣವಿ ಕೊಲದ ಗುಣ್ಣೆಯ ಕೊಡಿತು  
ಸೀಮಾನ್ತರಸ್ಸ ಸಾಕ್ಷಿಣಾಂ ಕೊತ್ತಮುಡ್ಗಿಲದ ನಂನಿಯರು ಹಡದ ... ಪುಡೆಯರು ಗಣಿಗನೂರಲಿನದ .. ಕರು  
ತಲಕಾಡಹನ್ನು .. ವರು ಮದ್ದೂರ ಗಣೆಯರುಂ ಸ್ವದತ್ತಂ ಪರದತ್ತಂ, etc.

*Ep. Car.*, Vol. VII, p. 156.

Shikarpur 52 (?) 357 A.D.

ಪೂರ್ವದ ಹಳಗನ್ನಡಕ್ಕರ ಅನೆಯುದೈ.

“ . . . ಪದ್ಮಾ ವತೀದೇವಿಯಳಬ್ಬ ವರಪ್ರಶಾಧತದಜ್ಞಾಳ್ತಾದ ಪರಮ ಭವನ ಪುರುಮಧ್ಯೇ ತಗ ವರ್ಷ  
ನಯನಗಿರೀನಯಾ ಶಾಧಾರಣ ಶಮ್ಭುಚ್ಚರೇ ಪಾಲ್ಗುಣವೂ ಅಮವಾಶೀ ಅದಿವಾರದನ್ನು ಕಾರೆನಾಡ ದೇವನೂರನು  
ಳಗ್ಗೆಯರ ಕುಳದಮುಳಿಗವುಡನ ಶುಪುತ್ರ ರಾಮಧೇವನು ಹೆಜ್ಜು ಜಿನಿಜಿದು ರಾಜಮಲ್ಲನ ಹೆಜ್ಜಿತಿ ಭಣ್ಣಿರವನು ಬಲ್ವಳಾ  
ತಿನೊಪ್ಪಿತದಲ್ಲಗೆ ಮೆಚ್ಚುಗೊಟ್ಟ ಭೂಮಿ.”

*Ep. Car.* Vol. IX, Bangalore, p. 459.

Ganga, Kongani Maharaja Db. 67.

ಅನೆಯುದೈ.

೩ ನೇ ಪತ್ರದ ಹಿಂಭಾಗ

‘ 24 . . . ಪೆರ್ಗಣ ನಿಪನ್ನ ಕ್ಕಣ್ಣು ಗವೆದೇ ನಮಿಕೊಂ ಒನ್ನುಪಾಯಂ ಒನ್ನು ಅಭಿವುರ . . .

*Ep. Car.*, Vol. I, pp. 1—4.

Coorg Inscriptions.

Copper-plate Inscription at Mercara. Date A.D. 466.

Purvada Hale-Kannada Characters. Seal: An elephant.

p. 3, l. 19—ಪಡಿಯೆ ಅಜ ಒಡನ್ ಉರ್ ಉರೊಳ್ ಪನ್ನೀರ್ ಕ್ಕಣ್ಣು ಗನ್ ಗೆಯ್ತು ಅಮ್ಬಲಿಮಣ್ಣುಮ್ ತಳ  
ವನಪುರದೊಳ್ ತಳವಿತ್ತಿಯಮನ್ ಪೊಗರಿಗಿಟಿಯೊಲ್ ಪನ್ನಿರ್ ಕ್ಕಣ್ಣು ಗಮ್ ಪಿರಿಕೆಟಿಯೊಳಮ್ ರಾಜಮಾನಮ್  
ಅನುಮೋದನ ಪನ್ನಿರ್ ಕ್ಕಣ್ಣು ಗಮ್ ಮನೋಹರಮ್ ದತ್ತಮ್ ಬದಣಿಗುಪ್ಪೆ ಗ್ರಾಮಸ್ಥ, etc.

*Ep. Car.*, Kadur, Vol. V., p. 175.

Ganga, C. 480; Nirvinita, C. M. 50;

ಪೂರ್ವದ ಹಳಗನ್ನಡಕ್ಕರ.

ಸ್ವಸ್ತಿ ಶ್ರೀ ನಿವ್ವನೀತರಾಕುಟಾಯಾಮಗನ್ನಿರ್ಕದುವಟ್ಟಿಯರಿಂದಮ್  
ವಲ್ಲವರಸರನ್ನದೊಕ್ಕೊಣ್ಣಿ ಪದಸೂನಿದೊ  
ರಾ ಅನುಜೊ ಇನ್ನು ಕನಲ್ಗೊಳಿನನ್ನಿ ಯಾಲರಾವಿ  
ಟ್ಟದು ಪಡೆವೈಲಾಮುಅಮಸಪಾಲಮ್  
ಇದಾನಜೊನ್ನಾಳನ ಪದೊಪಣ್ಣ ಮೂಪಾತಗಮಕ್ಕುಂ  
ಸ್ವಸ್ತಿ ಶ್ರೀ ಅಮ್ಬೋರಮ್ಬದಿವಕ್ಕುರ್ಪದಿರ್ಕ್ಕಣ್ಣು ಗನಲ್ವತ್ತಭಿವಿ  
. . . . ದಮರಮಸುಕೆಯೆ.

ಇ ಉರಾಸುಕಂ ದೇವತು.

*Ep. Car.*, Vol. XI, p. 20.

No. 43 of Chitaldroog. (A stray verse). 5th cent.

ಬಿಣಮಣಿ ಅನ್ನು ಭೂಗಿ ಬಿಣದುಳ್ಳಣಿವಿಲ್ವನದೊನಿನ್  
ರಣಮುಖದುಳ್ಳಕೋಲಂ ನೆಯಕ್ಕು ಮನಿನ್ನದ್ಯೆ ಗುಣನ್  
ಪ್ರಣಯಿಜನಕ್ಕೆ ತಾಮನುತೋಪ್ಪಲವಣ್ಣನವನ್  
ಗುಣ ಮಧುರಾಂಕ್ಕ ದಿವ್ಯಪುರುಷನ್ನುರುಷ ಪ್ರವರನ್ ||

*Ind. Ant.*, Vol. X, p. 60.

About 6th cent. A.D.

On the rock near the Vaishnava Cave III, Badami.

ಸ್ವಸ್ತಿ ತ್ರೀಮುಖ ಪ್ರಭಾವೀವಲ್ಲ ಭ ಮಂಗಲೀಸನಾ  
ಕೃಷ್ಣನೇ ಇತ್ತೊಂದು ಲಂಚಗೇಸರಂ ದೇವಕೇ ಪೂನಿಷುವ  
ಮಾಲಕಾರಗ್ಗೇ ಅರ್ಧದ ವೀಸದಿ ಇತ್ತದಾ ಗಟಿಪೋನ್  
ಪದ್ವಿಮಹಾಪಾತಕನಕ್ಕುಂ ಏಟಿನೆಯೊ ನರಕದಾಪುಷು ಅಕ್ಕುಮ್.

*Ep. Car.*, Vol. X, pp. 2-3.

Kolar No. 6, 735 A.D.

ಸ್ವಸ್ತಿ ತ್ರೀ ಕೊಂಗಣಿ ಮಹಾರಾಜತ್ರಿ ಪುರುಷ ಪೃಥುವೀ ರಾಜ್ಯ ವಿಜಯ  
ವತ್ಸರ ಇವ್ವದಾ ಏಣ್ಣನೇ ಯೊಳು ತಿವಮಾರ| ಕದಮ್ಬರಂ ಅಳಿ  
ಕದಮ್ಬರ್ಮದರಮ್ಮ ಇಯೋ ನ್ನುಕಣ್ಣೇತ್ತರಕು ಪೊಯ್ತ  
ಮಲುತ ಕಟಿನ ಕಣ್ಣುಗಂ ಎಲ್ಲಿದ್ದ ಪಾಳು ಆಯ್ತ ಮಾಸೇ  
ಮೊನ್ನತ್ತಳಿ ಅಟಾರನ್ನ ಪೊಕಣ್ಣೇತ್ತರುಂ ಅಳ್ವ ಅರಸನು ಮಾ  
ಡಿಸುವೊರ್ ಪಾಲಿಸುವೊರ್ ಪೊನ್ನಿಲನುನ್ನಿಸಿಜುಸುಳ್ಳರೆ ಕಾನಿ  
ಪೊದು ಅನು ಮಾಡಿಯ ಪೊಲಿಯೆ ಕೊಣ್ಣು ದಳಿವುತು ಕುಪೊಂ  
ದು ತಳಿಕ್ಕ ರಿಕ ಪೊರೊಟ್ಟು ಮಾನುವೊನ್ನ ಮುದಲ್ತುಕ್ಕಣ್ಣುಗ  
ಭಕ್ತ ಪೊಲಿಯೆ ಕೊಣ್ಣುಟ್ಟು ಪೋನ್  
ಈ ಧರ್ಮ ಮಾನ್ವಿ ರಕ್ಕ ಚಿದೋನ್ನಡಿ ಎನ್ನಲೆ ಮೇಲೊ  
ಈ ಧರ್ಮ ಮಾನ್ವಿ ಪೋನ್ನಿ ಮಹಾಪಾತಕನಕ್ಕು  
ಅರ್ಧಕ್ಕಣ್ಣುಗ ಆಯ್ತಪುದ ಪೊಯ್ತೊದು.

*Note.*—Mr. T. T. Sharman of the Visvakarnataka office kindly referred me to a few of these inscriptions.

## APPEN

(For numbers see *Mysore*)

Original Passages	A Tentative Rendering in Kannada	Probable Interpretation
2. Kraunou	Karevano ? ಕರೆವನೋ ?	Does he call ?
3. Lalle	Lalle ಲಲ್ಲೆ	(He is) coaxing
4. Laitaliana Lalle	Le ennuta le ennuta lalle ಲೆ ಎನ್ನುತ ಲೆ ಎನ್ನುತ ಲಲ್ಲೆ	He is coaxing by saying 'le'
5. Kotakos anab. iosara	Koḍagûsina bayvasara ಕೊಡಗೂಸಿನ ಬಯ್ಯಸರ	An insulting word of the buffoon to the maiden, i.e., the Greek lady
6. Laspathia	Lêsu baḍia, ಲೇಸು, ಬಡಿಯ	Well, beat him
7-8. Alemaka	Allemmakka, ಅಲ್ಲಮ್ಮಕ್ಕ	Not, my sister
9. Psolichus	—	—
10. Minei	Mina ? ಮಿನಾ ?	For bath
11. Ai arminthi	Ai âr mindai, ಐ, ಆರ್ ಮಿನ್ಡೈ ?	Who has bathed ?
12. Brathis	Bêre âthisu=bêre âdisu, ಬೇರೆ ಆಡಿಸು	Cause them to play at dice, each separately.
13. Stoukepairomel- lokoro	Toyige pâyiro melloga- rakke, ತೊಯಿಗ ಪಾಯಿರೊ ಮೊಲ್ಲೊಗರಕ್ಕೆ	For the boiled pulses, rush and for the purpose of getting the sauce

## DIX C.

*Archæological Report for 1926.)*

## Glossary of Words

## Tamil Equivalents

root *kare*=to call: 3rd person, singular, future tense.

cp. *lallevātu*.

'*le*'—particle used in addressing females. '*ennuta*'—imp. part. of root '*en*'=to say.

'*Koḍagūsu*'=a virgin. '*bayva*'=present part. of root '*bay*'=insult. *Sara*=*svara*=voice.

'*lēsu*'=well. '*badiya*'—imperative singular of root *baḍi*=to beat.

'*alla*'—emma+akka.

Karevano? (கரைவனோ in Kodun-Tamil) Does he call?

Le. (லே) He is coaxing.

Le le enṟu (லே லே என்று) He is coaxing by saying (Le, le).

—

.....Adi (அடி)..... Beat.

Alla-em-akka (அல்ல நமது அக்கா) Not (my or our) sister.

—

*miṇa ay*. *miṇa*=noun form of root *mī*, to bathe. *ay* is an expletive.

*ār*=who, *minday*—2nd pers. sing. indicative form of past tense of root *mī*=to bathe.

*bére*—separately. *āḍu*—2nd pers. imperative sing. of root *āḍu*=play: *āḍisu*=2nd pers. imperative singular causal form of the root *āḍu*.

18th Gk. letter Sigma is usually prefixed to words beginning with a consonant, *toyige*=boiled pulse. *pāyiro*—2nd pers. imper. pl. form of root *pāy*=to rush. *Mellōgarake*=for the sauce (dative singular).

—

.....May it not be a shortened and corrupt form of meenakshi; if so, it does not fit in with the context.

Ai Âr.....(ஆர் or யார்?)..... Who? If Ai, yār munthai, it means, look here, who will be the first.

Vêre attuvi (வேறே ஆட்டுவி) Cause them to play each separately; cf. Vraithis, i.e., those who are under a vow.

Thovaikku pāi ..... (தொவைக்குப் பாய்.....) For the boiled pulses rush; cf. Thūkki, payara, mella, korokko.

Original Passages	A Tentative Rendering in Kannada	Probable Interpretation
15. Brathie	Bere, athi=bère âḍi, ಬೇರೆ ಅಡಿ	Play separately
16. Bere konzei damun petrekio	Bère koṇḍu hoida mun bêtirêkeyo ? ಬೇರೆ ಕೊಂಡು ಹೊಯ್ದು ಮುನ್ ಬೇರೆ ತರೆ ಎಕೆಯೋ ?	Why do you cringe before it is separately poured to you ?
17. Paktei kortames bere ialer o de pomenzi pet- rekio	Pagaḍeya kôrutam îsu bère ellarâde ponnenîsi bêtirêkeyo ? ಪಗಡೆಯ ಕೋರುತ್ತಮ್ ಈಸು ಬೇರೆ ಎಲ್ಲ ರಡೆ ಪೊನ್ನೆನೆಸಿ ಬೇರೆ ತರೆ ಎಕೆಯೋ ?	Though you have been hoping this much through casting the die each after counting the gold at stake, why do you still cringe ?
18. Damut kinze paxei zebes lolo bia bradis kottos	Tamutake enîsi pagaḍeya îse besadolavia bère âḍîsu kottu ôsu ತಮುತಕೆ ಎನೆಸಿ ಪಗಡೆಯ ಈಸೆ ಬೆಸದೋಲ ವಿಯ ಬೇರೆ ಅಡಿಸು ಕೊಟ್ಟು ಓಸು	Cause each of them to play, each having counted his own (share) and each casting the die loved for odd (num- ber) and chop off the whole (of sauce).
19. Zopit	Hô bittu ಹೋ ಬಿಟ್ಟು	Oh, it fell.
20. Zeisoukor mo- sede	Hoyisikol môsade ಹೊಯಿಸಿ ಕೊಳ್ ಮೋಸದೆ	Have it poured into your vessel by cheating.



Vêre- âdu(ngal).....(வேறே ஆடு  
(ங்கள்). Play separately.

*kondu*—past part. of the root *kol*=  
to take. *Hoyyada*—negative part.  
of root *hoy*=to pour out, *mun*=  
before.

Vêre konu peivadarku mun  
edarku vêtir. (வேறே கொண்டு  
பெய்வதற்கு முன் எதற்கு கெஞ்சுகி  
ரீர்) Why do you cringe before it  
is separately poured to you? cf.  
Vêre Konjam or Kanji. See  
Dr. Hultzsich's rendering in  
J. R. A. S., 1904.

*pagadeya*=accusative singular of  
*pagade*=dice, *kôrutam*=present  
part. of root *kôru*=to desire, hope.  
*Isu*=this much. *ellar*=all per-  
sons. *âde*=having played. *pon*  
=gold. *enisi*=having counted,  
from root *enisu*=to count, *bêtir*—  
past pl. of *bê*=to beg. *êke*=why.

Pagadeya korium.....vêre ellâr  
adavum pon enni edarku vêtir.  
(பகடையைக் கோரியும்.....வேறே  
எல்லா (ரும்) ஆடவும் பொன்னெண்ணி  
எதற்கு கெஞ்சுகிரீர்) Though you  
have been hoping.....through  
casting the die each after count-  
ing the gold at stake, why do  
you still cringe; cf. pakkathu  
kotram vêre ayatar oðê pomenru  
petrukio. "Would you send  
neighbourly friends away and  
take the things yourself?"

Greeks felt it difficult to pronounce  
Kannada words. See *Sabdamani-  
darpana*, Sutras 148 and 209.  
*isa*=*isu*+*e*. *besada*=of the odd  
number, *olaviya*—accusative  
singular of *olavi*=love, from root  
*ol*=to love. *Kottu*=chop off, *ôsu*  
=all.

Thangaladai enni pagadeyei.....  
vêre âtti kottu (or kuttu).....  
தங்களதை எண்ணி பகடையை.....  
வேறே ஆட்டு (வித்து) கொத்து  
(or குத்து).

For *hō bıldattu*. *ho*—an interjection,  
*biḷ dattu*—past, singular of root  
*biḷ*.

Hō ! Vīḷndadhu or (Vizshndadhu)  
(ஓ ! வீழ்ந்தது).

*hoyisikol*=get poured. *môsade*=by  
deceit.

Peidukol mōsathināl (பெய்து  
கொள் மோசத்தினால்).

Original Passages	A Tentative Rendering in Kannada	Probable Interpretation
21. Skalmakata	Kaḷ maka tā, bâ ಕಾ, ದಾ ಕಳ್ ಮಕ	O son, come and give the wine.
22. Bapteiragoumi	Opputerake avam î ತರಕೆ ಅವಮ್ ಈ ಒಪ್ಪು	For the ransom agreed upon, give them (wine).
23. Tougoummi	Toyige avam î ತೊಯಿಗೇ ಅವಮ್ ಈ	Give them (wine) along with the boiled pulse.
24. Nekelekethro	nî kélêke ettiro ನೀ ಕೇಳಿಕೆ ಎತ್ತಿರೊ	You ask them why. Raise up, your cups.
25. Eitou belle trachoupteragoumi	Âyito belle trâska oppu- terake avam î ಅಯಿತೊ ? ಬೆಳ್ಳಿ ದ್ರಾಕ್ಷ ಒಪ್ಪು ತರಕೆ ಅವಮ್ ಈ.	Is it over ? then the white wine ; give them (wine) for the ransom agreed upon.
26. Trachounter- mana	Trâskavun teramâna ದ್ರಾಕ್ಷ ವಂ ತರಮಾನ	Wine is the ransom.
27. Boullitikaloumbai	Bâ oḷitu îkaḷ umbai ಬಾ ಒಳಿದು ಈ ಕಳ್ ಉಮ್ಮೈ	Come, you drink this good wine.

*kal*=accusative singular, *maga*=son, vocative case, *ta*, *ba*=second pers. imperative singulars of roots *tar*=to bring, *bar*=to come.

*oppu*terake is the compound form of *oppida*.terake from root *oppu*=to agree; *avam*=them; *i*=second pers. imperative singular of *i*=to give.

*toyge* -dative singular of *toy*=boiled pulses.

*ninkêl êke ettirô*. *nîn*=you, *kêl*=second person imperative singular of root *kêl*=to ask, *êke*=why, *ettirô*=raise up, second person plural imperative of root *ettu*=to raise.

*âyito*=is it over, *beḍḍrâksha*=white wine.

*drâkshavum teramâna*. *drâkshavum*=wine also; *teramâna*=payment or ransom, from root *teru*=to pay.

*bâ*=come. *olitu*=well (adverb). *ikaḷ*=this wine, *umbai*=you will drink from the root *un*=to eat.

Kal-maka-tâ-vâ. (கல் மக தா வா)  
O son, come and give the wine;  
*cf.* Kal makkal tha=give the drink to the children. Quære: Is *Kal* the stone?

Oppu thirai avarkku î (ஒப்பு திறை அவர்களுக்கு ஈ) For the ransom agreed upon give them (wine); *cf.* Appam tarugumê=We will give the cakes.

Thovaiku avai î (தொவைக்கு அவை ஈ) Give them (wine) along with the boiled pulse.

Nî-kêl-edarku.....ettir. (நீ கேள் எதற்கு.....எடுங்கள்) You ask them why. Raise up (your cups); *cf.* Nee keelê ulkhaṇḍhiru=You may be seated.

Ayito, vellai or (vellê) thrashi.....  
oppu thirai avaigalukku î. (ஆயித் தோ, வெள்ளை திராட்சை; ஒப்பு திறை அவைகளுக்கு ஈ) Is it over? Then the white wine; give them wine for the ransom agreed upon; *cf.* Yedo vallê rakshithu tharugumê=Here, now, I am able to give you protection.

Thrâshaiyum.....thirai mānam (திராட்சையும், திறைமானம்) Wine is the ransom.*cf.* Rakshithu, tharuvanô=Will he protect us?

Vâ-ollidu-î-kal-unbai (வா ஒளிந்து ஈ கல் உண்பை பாய்) Come, you drink this good wine; *cf.* Olinthi kollum payya=Son (child), hide yourself.

Original Passages	A Tentative Rendering in Kannada	Probable Interpretation
28. Platagoulda bi...	Pāl (=bāl) tagulḍapai ಬಾಲ್ ತಗುಲ್ದಪೈ	You get life.
29. Apuleukasar	Â puli kasar ಆ ಪುಳಿ ಕಸರ್	This is the sour sediment of the wine.
30. Chorbonorbo- thorba	Kôruvon orvan dorevon ಕೋರುವನ್ ಓರ್ವನ್ ದೋರೆವನ್	One who desires will appear.
31. Toumion axiz	Tâvamîvon ತಾವಮ್ ಈವನ್	He will give you a place.
32. Despit platago- ulda bi...	Axih désa bittu bâl tagul- dapai ಆಕ್ಸಿ ದೇಶ ಬಿಟ್ಟು ಬಾಲ್ ತಗುಲ್ದಪೈ	Having left the country of Axih (Oxyrhyncus) you will get life.
33. Seo sarachis	Śiva sarakisu ತಿವ ಸರಕಿಸು	O Siva! bestow care on us.
34. Oradosatur	Oldu ose tôr ಒಲ್ದು ಒಸೆ ತೋರ್	Kindly show love to us.
35. Ouamesare	Oumesare ಓಮೇಸರೆ	Obscure. Is it Somesvara near Malpi?

Mr. B. L. Rice suggests 'to clap hands'. *bāl*=life, accusative singular; *taguldapai*=2nd pers. sing. present of root *tagul*=to be in contact with.

*ā*=particle indicating wonder, *puli*=sour, *kasar*=sediment.

*orvan*=one (masculine sing.); *dorevon*=will be forthcoming, from root *dore*=to obtain.

*tāvam*=a place, accusative sing. *ivon*=will give, 3rd pers. fut. sing. of *i*=to give.

*dēsavam*+*bittu*=having left the country.

*sarakisu*=take care of, second pers. imperative sing. of verb *sara-kisu* formed from the noun *saraku*=care. cp. *Sarakugol*.

*oldu*=having loved. *ose*—*tôr*=show love.

Vālvu (Vazhyu) thakkikol. (வாழ்வு தாக்கிக்கொள்) You get life; cf. *Peļai* *thu* *kolļu* *vai*=You will survive.

Â *puli* *kasar* (*kasadu*, *kayar* or *kasandu*) ஆ புளி கசர் (கயர்) This is the sour sediment of the wine; cf. That sour sauce.

Kōruvān *oruvan* *thōṇṇuvan* (கோருவான் ஒருவன் தோன்றுவன்) One who desires will appear; cf. *Sōru* *mun* *othâr* *bâ*=Before we are tired, let our people come.

Thāvu-avan-î-van (தளக்கு அவன் ஈவன்) He will give you a place.

Axih *dēsam* *viṭṭu* *vālvu* *adaivai*. (Axih தேசம் விட்டு வாழ்வு அடைவை) Having left the country of Axih you will get life; cf. *Dēsam* *viṭṭu* *pilaitu* *kolļu* *vai*=Leave the country and save your life.

Siva, *sāru* (சிவா சாரு) O Siva! bestow care on us.

Oliḍu-asayei-thorru. (ஒலிது ஆசையைத் தோற்று). Kindly show love to us; cf. *Vovvôr* *dēsattâr*=people of different countries.

\* Ôm-Īsarê. (ஓம் ஈசரே). O God! cf. *Ov* *vumō* *nēsarê*=Is this good, friends?

\* Here it strikes me, that, "Oumesare" need not be obscure nor need it be attributed to a village called Someswara near Malpi. We can safely say that it means O God! The king first prays to God Siva to bestow care on him, secondly, to show love to him and lastly, he addresses him as Om Īsarê (ஓம் ஈசரே) Oh God! etc. So this (35) Oumesare which is mentioned as obscure may be taken to mean Om Īsarê (i.e.) O God! etc.

Original Passages	A Tentative Rendering in Kannada	Probable Interpretation
36. Sumpsaradara ei ia da...	Sumpsarada âra aida ಸಂಸಾರದ ಅರ ಐದ	Go to the river of the place called Sumpsara or Umpsara. Psolichus is short for Sumpsaradâru.
37. Martha maritho- uma edmaimai maitho thamou- na martha mari- thouma	Mardam aridevu ; mâyada maime ; mâyada adan unna ; mardam aride- vamma [according to Mr. Bhaskarananda Saltore]	Obscure. Dr. Shama Sastri doubts the inter- pretation. We learnt a medicine ; this is the power of Mâya ; eat this of Mâya ; we learnt medicine.
38. ....tun	—	An invitation of the sound of drums.
39. Malpiniak our- oukoukoubi karako...ra	Malpinâik avara avvage karadukol ಮಲ್ಪಿನಾಯ್ಕ ಅವರ ಅವ್ವಗೆ ಕರದುಕೊಳ್ಳ	O Malpinaik,—the rest is obscure.
40. Aba	Aba-abba	A word of exclamation.
41. Zabede	Habbede—Habbada ede ಹಬ್ಬದ ಎದೆ	The dish of a feast.
42. Za biligidoumba	Habedege idan unbâ ಹಬೇಡೆಗೆ ಇದನ್ ಉಣ್ಣಾ	Come, eat this for a dish of a feast.
43. Pan oum breti- kateman ouam bre thououeni	Pânavan bêre ettikkade mânavan bêre ettau avve nî ಪಾನವನ್ ಬೇರೆ ಇಟ್ಟ ಕ್ಕಡೆ ಮಾನವನ್ ಬೇರೆ ಇಟ್ಟು ಅವ್ವನೀ	Without the distribution of drink to us separately, you divide shares of ransom (mâna), O ma- dam.

*âra*=river, accusative sing. from the noun *âru*=river (Tamil *âru*=river)  
*eyda*=go to, 2nd pers. sing. imperative form of root *eydu*=to go to, to attain.

*avara*=their, *avvege*=to mother, *karedukol*=catch hold of, 2nd pers. sing. imperative form of the root *kare*=to call.

*habbada*=of a feast. *ede*=a dish.

*pānavam*=drink, acc. sing.; *bēre*=separately; *ettikkade*=not having distributed (*ettu+ikku*): *mānavam*=ransom, acc. sing.; *bērettu*=set apart, second pers. sing. imperative of root (*bēre+ittu*); *avve*=vocative case; *nī*=you.

.....*Âru aidu.* (ஆறு எய்து) Go to the river...*cf.* Sambhu saradara ē yā do=Would not Siva give us arrows to fight?

.....*cf.* Marithu marithōme *edam amaikm*=If we should hide again, securing a good place.

.....*cf.* Thavamēna marithu marithome=by our *thapas*, if we can hide again.

Malpi Naik avar avvayei karaindukol (மால்பி நாயக் அவர் அவ்வையைக் கரைந்துக்கொள்). This may be explained as follows:—The king may probably have asked the chief of Malpi who was with him, to send for the *Greek Lady Charition* (i.e.) *Avar avvai.* (அவர் அவ்வை).

Abba-abba (அப்பப்பா).

Paruvathin edē (பருவத்தின் எடை); *cf.* The feast of a person in the prime of life.

.....Idan-un (இதனை உண்) Eat this.

Pānathai vērē eduthuvaikkāmal mānathai vērē avvaini edukirai. (பானத்தை வேறே எடுத்து வைக்காமல் மானத்தை அவ்வை நீ வேறே எடுக்கிறாய்). The meaning is strained.

Original Passages	A Tentative Rendering in Kannada	Probable Interpretation
44. Panoumbreti- kate manouam bretou oueni	—	See 43. <i>cf.</i> Dr. Hultzsch, <i>J.R.A.S.</i> , 1904. Why not—give the nectar to drink it.
Parakoum breti- ka te ma noum bret ouou eni	Parakeyam bêre ettikkade mânavam bêrettau avve nî	Without setting aside our blessings you divide shares of ransom, O madam; <i>cf.</i> Kindly see nectar is given to drink.
45. Olusadizaparda piskou piskate man	Olisade irpara tappisikol oppisikutte emman ಒಲಿ ಸದೆ ಇರ್ಪರ ತಪ್ಪಿಸಿಕೊಳ್ ಒಪ್ಪಿಸಿ ಕೊಟ್ಟೆ ಎಮ್ಮನಾ	Unable as we are to win your regard, you may go away with our free consent.
46. Arei man ridaou	Âr emmannar ಆರ್ ಎಮ್ಮನ್ನರ್	Who are there like our- selves?
47. Oupatei....a	Idu oppite ಇದು ಒಪ್ಪಿತೆ	Is this to your satisfac- tion?
48. Orkis	Oragisu ಒರಗಿಸು	Support him (the king).

NOTE.—The rendering in Kannada, probable interpretation and the glossary of words are according to Dr. Shama Sastri (*cf.* Mysore Archæological Report for 1926). I am obliged to a few friends for the Tamil Equivalents.



*parakeyam*--singular of *parake*.

Parasu..... (பரசு).....Blessings.

*olisade*=without loving, neg. part.  
*tappisikol*=escape; *oppisi*=having  
 persuaded; *emman*=us; *âr*=who.

Oliyâdiruppavar—thappithukol—  
 oppi-vittu engalai. (ஒலியாதிருப்  
 பவர் தப்பித்துக்கொள் ஒப்பி விட்டு  
 எங்களை).

Âr-em-annar or Âr-emmannâr  
 (ஆர் எம் அன்னார் or எம்மன்னார்).  
 Who are these like ourselves?

Idu oppirrō? (இது ஒப்பிற்றோ?)  
 Is this to your satisfaction?

*oragisu*=second pers. sing.

Urangavai (உறங்கவை). Allow him  
 to take rest by making him  
 sleep.

## NOTES.

### Orientation.

BY K. RAMAVARMA RAJA, ESQ., B.A.

SINCE writing my previous note published in the *Quarterly Journal of the Mythic Society* (July 1927, pp. 65 and 66), more instances have been met with and collected, of the uses of the Sanskrit words for the four sides of the eastward-looking man and the corresponding four quarters of the earth which would further strengthen the position taken by me there, *viz.*, that such a man was the standard for fixing the four cardinal points with reference to his four sides. The context in which these words occur is the famous parable of *Puranjana* in the *Bhagavata Purana* (*Adhyayas* 25—29 in *Skandha* IV) wherein the soul occupying its earthly tenement is metaphorically depicted as a king residing in his court and the same words when used to describe the human body denote its four sides—front, right, back and left—but when employed in the description of the royal residence, signify the corresponding four quarters—east, south, west and north—respectively. The metaphorical or allegorical passage and its explanatory text that follows bring out more clearly the relationship between the two sets of words upon which my view was based. I shall next quote the two texts and try to enlighten them with my brief comments :—

सप्ते परिकृता द्वारः पुरस्तस्यास्तु द्वे अधः ।  
पृथग्विषयं गत्यर्थं तस्यां यः कश्चनेश्वरः ॥४५॥  
पंचद्वारस्तु पौरस्त्या दक्षिणैका तथोत्तरा ।  
पश्चिमे द्वे अमृषांतं नामानि नृपवर्णये ॥४६॥  
खद्योताविर्मुखी च प्राग्द्वारावेकत्रनिर्मिते ।  
विश्राजितं जनपदं याति ताभ्यां ह्युमत्सखः ॥४७॥  
नलिनी नालिनी च प्राग्द्वारावेकत्रनिर्मिते ।  
अवधूत सखस्ताभ्यां विषयं याति सौरभम् ॥४८॥  
मुख्यानाम पुरस्ताद्द्वारं स्तयापणं बहूदनौ ।  
विषयौ याति पुरराड्रसंज्ञविपणान्वितः ॥४९॥  
पितृहूर्नाम पुर्याद्वा दक्षिणेन पुरंजनः ।  
राष्ट्रं दक्षिण पांचालं याति श्रुतिधरान्वितः ॥५०॥  
देवहूर्नाम पुर्याद्वा उत्तरेण पुरंजनः ।  
राष्ट्रमुत्तरपांचालं याति श्रुतिधरान्वितः ॥५१॥  
आसुरी नाम पश्चाद्द्वारं स्तया याति पुरंजनः ।  
ग्रामकं नाम विषयं दुर्मदेन समन्वितः ॥५२॥  
निर्ऋतिर्नाम पश्चाद्द्वारं स्तया याति पुरंजनः ।  
वैशसं नाम विषयं लुब्धकेन समन्वितः ॥५३॥

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The residence has seven openings above and two below and is ruled by some one unknown. Of these five open to the east, one to the south, one to the north, and the remaining two to the west (posterior or back side). They are then described in detail to indicate their identity with the two eyes, two noses and one mouth (all these five in the front side), right ear (south); left ear (north); the genital opening and the anus on the posterior or back side. This metaphorical or allegorical passage is later interpreted in the text itself which explicitly applies the previous mystic descriptive statement, word for word, to the human body and identifies the nine openings with the five senses and the genital and faecal apertures amounting in all to nine openings—two eyes, two noses, one mouth (front), right ear (south), left ear (north), and genital aperture and anus (west posterior or back side).

The explanatory text reads thus :—

पंचालाः पंचविषया यन्मध्ये नवखं पुरम् ॥७॥  
 अक्षिणी नासिके कर्णौ मुखं शिश्रुगुदाविति ।  
 द्वे द्वे द्वारौ बहिर्याति यस्तदिन्द्रियसंयुतः ॥८॥  
 अक्षिणी नासिके आस्यमिति पंच पुरःकृताः ।  
 दक्षिणा दक्षिणः कर्णः उत्तराचोत्तरः स्मृतः ॥९॥  
 पश्चिमे इत्यधो द्वारौ गुदं शिश्रुमिहोच्यते ।  
 खद्योता विर्मुखीचात्र नेत्रे एकत्र निर्मिते ।  
 रूपं विभ्राजितं ताभ्यां विचष्टं चक्षुषेश्वरः ॥१०॥  
 नलिनी नालिनी नासे गंधस्सौरभ उच्यते ।  
 घ्राणोऽवधूतो मुख्यास्थं विपणोवाग्रसविद्रसः ॥११॥  
 आपणो व्यवहारोऽत्र चित्रमंधो बहूदनम् ।  
 पितृहृद्दक्षिणः कर्ण उत्तरो देवहूस्मृतः ॥१२॥  
 प्रवृत्तं च निवृत्तं च शस्त्रपंचाल संज्ञितम् ।  
 पितृयानं देवयानं श्रोत्राच्छ्रुतिधरा द्वजेत् ॥१३॥  
 आसुरी मेंद्रमर्वागद्वा व्यवायोग्रामिणां रतिः ।  
 उपस्थो दुर्मदः प्रोक्तो निरुक्तिर्गुद उच्यते ॥१४॥  
 वैशसं नरकं पायुर्लब्धकौधौ तु मे शृणु ॥

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\*

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[Bhag. P.—IV—29—(7—15)]

Here are two sets of words :— (1) पुरः, प्राक्, पुरस्तात्, (2) दक्षिण, दक्षिणेन, (3) पश्चात्, पश्चिम, and (4) उत्तर, उत्तरेण ;—which are used in the sense of the four sides of the eastward-looking person—front, right, back and left—as well as to denote the corresponding four quarters—east, south, west and north—respectively. And this is a more telling and impressive argument in support of the theory of their twinship or common origin as already suggested.

## Buhler's Error in the Interpretation of the Date of Candupandita.

BY P. K. GODE, ESQ., M.A.

I POINTED out in the January issue of this Journal (p. 224) that the date of Cāṇḍupaṇḍita, the author of the *Naiṣadhiyadīpikā*, the oldest known commentary on Śrīharṣa's epic, was given by Aufrecht in his Catalogue as A.D. 1456. It was further pointed out that this date conflicts with the date of a MS. of the work (No. 415 of 1887-91 from the Government MSS. library at the Bhandarkar Institute) viz., *Samvat 1442* (=A.D. 1386).

Since writing the above note I have been able to ascertain that Aufrecht has taken his date (A.D. 1456) from Dr. Bühler\* whose remarks about the date of Cāṇḍupaṇḍita are : "Cāṇḍupaṇḍita gives as the date of his own work the fifteenth day of Śuklapakṣa Bhādrapada of the year 1513 according to Vikrama's Era, or A.D. 1456-7 A.D." These remarks obviously refer to the following verse 5 at the close of the MS. (No. 16 of 1874-75):—

“श्री विक्रमार्कसमयात् शरदामथत्रिः पंचाशता समधिकेषु शतेष्वितेषु ।  
तेषु त्रयोदशसु भाद्रपदे च शुक्लपक्षे त्रयोदशतिथौ रविवासरे च ॥  
इयं टीका । निष्पन्ना etc.”

It will be clear from a perusal of the verse that the date ought to be Vikrama *Samvat 1353* as the verse states that thirteen centuries and fifty-three years (शरदां त्रिःपंचाशत्) had elapsed at the time when the work was completed.

Bühler's date *Samvat 1513* is obviously wrong. So also his fifteenth day of Bhādrapada, as we have in the verse the thirteenth day (त्रयोदश तिथौ).

The age of the MS. (No. 16 of 1874-75) is given at two places *Samvat 1473* (at the end of canto XXII) and *Samvat 1476* (at the end of canto II). If *Samvat 1513* is regarded as the date of composition of the work, how was it possible to have a copy of the work in *Samvats 1473 and 1476*? Bühler explains away this anachronism by remarking that “the dates refer no doubt to the *Śaka* era”.

As already pointed out, another MS. of the work (No. 415 of 1887-91) which was discovered by Dr. R. G. Bhandarkar bears the date *Samvat 1442*. This date again conflicts with *Samvat 1513* of Bühler. We cannot go on calling this *Samvat* date as having any reference to the *Śaka* era.

The correct date of the work is, therefore, *Samvat 1353* and this is in harmony with the dates of the MSS. available as will be seen from the following table :—

		<i>Samvat</i>	A.D.
1.	Date of composition ..	1353	1297
2.	Date of MS. No. 415 of 1887-91 ..	1442	1386
3.	Dates of MS. No. 16 of 1874-75 ..	{ 1473 1476	{ 1417 1420

\* Report on Sanskrit MSS. (1874-75), page 8 (note on MS. No. 16).

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# APPENDIX.

- (1).  $\begin{matrix} < < \\ < < \\ < < \\ < < \end{matrix} \begin{matrix} \vee \vee \vee \\ \vee \vee \vee \\ \vee \vee \vee \\ \vee \vee \vee \end{matrix} = 89.$  (2).  $\text{JYGP} = 1 + 80 + 100$ ;  $\pi J = 8 + 10.$
- (3).  $LX = 50 + 10.$  (4).  $H\Delta = 100 + 10.$
- (5).  $\omega\kappa = 10 + 1.$  (6).  $\text{ZHOC} = 100 + 80 + 9.$  (7).  $733 = 10 + 20 + 20.$
- (8).  $2\omega = 2 \times 10.$  (9).  $\lambda I = 100 \times 1.$  (10).  $<<V< = 10 \times 10 \times 1000.$
- (11).  $\Gamma^{\text{A}} = 5 \times 100.$  (12).  $F\alpha = 1000 \times 10.$  (13).  $\pi\tau\phi\omega\kappa = (100 + 5 \times 10) \times 1000.$
- (14).  $VV<V> \sum_{\sum} \sum_{\sum} VV = 2 \times 10 \times 100 + 80 + 2.$  (15).  $\psi N\Delta = 700 + 50 + 4.$
- (16).  $\text{ZJZ} = 300 + 50 + 4.$  (17).  $\alpha\eta\phi\phi\beta = 18592.$
- (18).  $\text{III} \equiv \text{T} - \text{II} = 99617.$  (19).  $X = 4.$  (20).  $\gamma = 10.$  (21).  $3 = 20.$
- (22).  $\lambda I = 100.$  (23).  $XX = 8.$  (24).  $\begin{matrix} I & II & + & \text{e} & \sigma & \text{E} & \text{G} & \sigma & \text{J} & + & \chi & \text{E} \\ \psi & (2) & (4) & (6) & (50) & (200) & (200) & (200) & (200) & (200) \end{matrix}$
- (25).  $\begin{matrix} \psi & \varphi & \varphi & \alpha & \alpha \\ (4) & (6) & (10) & (20) & (20) \end{matrix}$  (26).  $\begin{matrix} \gamma & \gamma \\ (7) & (9) \end{matrix}$
- (27).  $\phi = 80.$  (28).  $\text{ZH} = 100, \text{T} = 1000.$  (29).  $\text{H} = 60,000; \text{TZH} = 1700.$
- (30).  $\begin{matrix} \sim & \approx & \approx & \text{Z} & \text{or} & \text{Y} & \text{H} & \text{or} & \text{I} & \varphi & \gamma & \text{or} & \text{U} & \rho & \alpha & \text{or} & \alpha & \theta \\ (1) & (2) & (3) & (4) & (5) & (6) & (7) & (8) & (9) & (10) & (20) \end{matrix}$
- $\begin{matrix} \Sigma & \text{Y} & \text{V} & \text{W} & \text{W} & \text{g} & \text{g} & \text{g} & \text{g} & \text{g} & \text{g} \\ (40) & (70) & (100) & (200) & (500) & (1000) & (2000) & (3000) & (4000) & (5000) & (70,000) \end{matrix}$
- (31).  $(F), C, S, \cdot, Z, \gamma; (\theta), H, \eta; \theta, \sigma, \Sigma.$
- (32).  $\Delta.$  (33).  $\text{Y}.$  (34).  $\text{g}.$  (35).  $\text{X}.$
- (36).  $\sim \text{or} \sim; 2 \text{ or } 3; 3 \text{ or } 3; \text{Y}; \text{Y}; \text{A}; \text{Z};$
- (37).  $\alpha = 10.$  (38).  $+$
- (39).  $\dagger$  (40).  $\text{POU} = 100 + 60 + 9.$  (41).  $\text{°°} | \text{°°} = 303.$

